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# THERMOPHYSICAL PROPERTIES OF NITROGEN TRIFLUORIDE FROM 66 TO 500 K AT PRESSURES TO 500 BAR

Robert D. Goodwin and Lloyd A. Weber

Density and specific heat data for nitrogen trifluoride have been measured in the approximate ranges $90 < T < 320$ K, $0.07 < \rho/\rho_c < 3$, at pressures up to 300 bar. These include vapor pressures, some orthobaric densities away from the critical region, and specific heats in the single and two phase regions. A nonanalytic equation of state is used to tabulate thermophysical properties along isobars. The tables include: compressibility factors, densities, enthalpies, entropies, heats of vaporization, isochores, isotherms, Joule-Thomson inversion, orthobaric densities, specific heats, speeds of sound, and vapor pressures. The data also are represented by an analytic equation of state and comparisons are made between some results from the two equations.

Key Words: Compressibility factors; densities; enthalpies; entropies; equation of state; heats of vaporization; isobars; isochores; isotherms; Joule-Thomson inversion; nitrogen trifluoride; orthobaric densities; specific heats; speeds of sound; vapor pressures.

## 1. INTRODUCTION

The purpose of this work has been to perform P-ρ-T and heat capacity measurements needed to develop equations of state, and then to report both the equations and tables of thermodynamic properties, including the computer programs.

The triple-point temperature was reported at 66.36 K by Pierce and Pace in 1954 [15]. In 1955 they reported vapor pressures and specific heats of the liquid up to the normal boiling point, and the heat of vaporization at the normal boiling point, (11587 $\pm$ 22 J/mol) at 144.093 K, corrected for the ice-point 273.15 K, and molecular weight on the $C^{12}$ scale) [16]. In 1956 Jarry and Miller reported vapor pressures up to their observed critical-point at 233.9 $\pm$ 0.1 K, as well as densities of the saturated liquid from 78 to 170 K [11]. Some P-ρ-T compressibility data were reported privately by E. A. Burns (1975) [1], and by E. M. Van der Waal and R. E. Anderson (1977) [1]. The range is $273 < T < 344$ K, $21 < P < 200$ atm, $0.14 < \rho/\rho_c < 1.48$.

Thermodynamic functions for ideal gas states appeared in the JANAF Thermochemical Tables in 1969 [2]. Thermodynamic properties over the P-ρ-T surface were computed by Seshadri, et al. in 1970 by use of some of the above

data and a Martin-Hou equation of state in which all parameters were estimated from simple physical properties [18].

At the start of present work, apparently no experimental compressibility data existed below 273 K. There were no experimental densities for saturated liquid above 170 K in the all-important critical region, and no such densities whatsoever for the saturated vapor. No virial equation of state was found for low-density gas. No saturated liquid specific heat data existed above the normal boiling point and there were no data at all for the single-phase fluid.

The present report includes results of experimental and computational work. The PVT compressibility measurements are described in a manuscript by Goodwin [7] for the range 90 to 320 K at pressures to 300 bar. Table 5 presents a comparison of these data with the nonanalytic equation of state. Specific heat measurements, for the saturated and compressed liquid up to 300 K, are described in a manuscript by Weber [22].

In the following we at first give a full description of development of the nonanalytic equation of state and of the computation of thermodynamic properties tabulated in this report. The specific heat measurements are described where appropriate, and the analytic, BWR-type of equation of state [10] is described in Sections 3.5 and 5.5. Finally, some comparisons are made between experimental and calculated data from the two equations of state, and also between calculated thermodynamic properties from the two equations.

In present work, we have derived second virial coefficients from 200 through 320 K. Vapor pressures have been measured from 160 K (2.75 bar) up to the critical point at 234 K (44.607 bar), and data have been derived via thermal loops from the triple- to the normal boiling-point (144 K). Some orthobaric densities have been derived at temperatures well below the critical. Apparent gravitational effects in our P-ρ-T data near the critical point preclude accurate extrapolation of experimental isochores to the vapor pressure curve in the critical region.

We have formulated the vapor pressures and orthobaric densities from the triple- to the critical-point, and then have developed the highly constrained, nonanalytic equation of state via our P-ρ-T data. This equation has the valuable property for thermodynamic computations that it is structured to be consistent with the known behavior of specific heats about the critical point. We also have fit an analytic 32-term Benedict-Webb-Rubin (BWR) equation, useful for many applications, to the P-ρ-T and specific heat data.

We subsequently formulate the available, ideal gas specific heats. We derive heats of vaporization via thermal loops from the triple- to the boiling-point, and via the Clapeyron equation up to the critical temperature, and formulate these data, to obtain enthalpies, entropies, and specific heats of the saturated liquid, and finally a complete thermodynamic network over the P-ρ-T surface. We then compare results from the analytic and nonanalytic equations.

The commercially purified $NF_3$ for the PVT work is 99.925 percent pure, and 99.90 percent for the specific heat measurements. Apparatus and the data-reduction programs for PVT work are the same as modified by G. C. Straty in prior work on ethylene [19]. The sample cell is 12.5 cm high, with a volume of about 28.5 $cm^3$. It is connected to a pressure transducer via a very small stainless steel capillary tube, brought out through the walls of the cryostat at a height within about 5 cm above the top of the cell (to avoid corrections for hydrostatic pressures in the former, vertical capillary). The transducer was maintained at 330 K.

Symbols and units for this report are in Appendix A, and fixed-point values in Appendix B. Computer programs are in Appendices C and D. The density-temperature phase diagram is outlined in fig. 1, where the upper left corner shows the qualitative behavior of freezing liquid densities. Explanations for table headings are in Appendix E.

## 2. PHYSICAL PROPERTIES

### 2.1 Fixed-Point Values

These values are listed in Appendix B.

(a) The Triple Point. The temperature used is from Pierce and Pace by subtracting 0.01 K for the ice-point [15]. This choice was made before our subsequent redetermination yielded a value 0.1 K higher [22]. The pressure is from our vapor-pressure eq. (1). The liquid density is assigned as a fitting parameter in eq. (2). The vapor density from eq. (3) is based on data derived from the vapor-pressure and virial equations.

(b) The Boiling Point. The temperature of 144.0935 K is from the vapor-pressure eq. (1) at a pressure of 1 atm = 1.01325 bar, as compared with 144.10 K reported by Jarry and Miller [11]. The liquid and vapor densities are from eqs. (2) and (3).

(c) The Critical Point. The temperature, 234.0 K, is selected for fitting estimated orthobaric densities and P-ρ-T data, as compared with 233.9 $\pm$ 0.1 K

observed directly by Jarry and Miller [11]. The density, 7.92 mol/L, has been selected by the condition that, at the critical point, the slope of the critical isochore (from the equation of state) be equal to the slope of the vapor-pressure equation, $\partial P/\partial T = dP_\sigma/dT$. The critical pressure is from the vapor-pressure eq. (1).

## 2.2 Vapor Pressures and Melting Pressures

(a) Vapor Pressures. Vapor pressures from the triple- to the boiling-point have been estimated via thermal loops as described in refs. [3,4], and in Program Ziegler, Appendix C. This computation yields also densities of the saturated vapor, and heats of vaporization. Information used includes the ideal gas specific heats, eq. (7); the virial eq. (4); specific heats of the saturated liquid [16]; and the heat of vaporization at the normal boiling point [16]. Vapor pressure above the boiling point have been measured directly, as reported in table 1. The data are formulated by use of the argument $x \equiv T/T_c$,

$$\ell n(P) = a + b/x + c \cdot x + d \cdot x^2 + e \cdot x^3 + f \cdot x\,(1 - x)^\varepsilon \quad , \qquad (1)$$

where P is in bar, $\varepsilon = 1.75$, and

| | |
|---|---|
| a = 20.3154 17602 | d = 20.1621 94616 |
| b = - 8.3620 69370 | e = - 6.9186 62727 |
| c = -21.3989 86401 | f = 3.6777 99376 |

Under heading ID in table 1 is given the source of data for each line, as specified at the top of this table. Heading DPS/DT is for calculated slopes of the vapor-pressure curve in bar/K. The calculated critical-point pressure (at 234.0 K) is 44.60713 bar, and the critical-point slope is 1.24509 bar/K. Data from other sources are given for comparison at the bottom of table 1. From about 2 bar up to the critical point, the vapor pressures of Jarry and Miller exceed ours by several percent. They used a 1000 psi Bourdon gage accurate to 0.25 percent of full scale, whereas we used a piston-type, oil dead-weight gage.

The last column of table 1 gives the experimental residual,

$$\ell n(P/P_t)/\ell n(P_c/P_t) - (1 - T_t/T)/(1 - T_t/T_c) \quad ,$$

which has been used in the past to develop the extended, nonanalytic vapor-pressure equation.

At the normal boiling point (144.0935 K) the vapor-pressure slope from eq. (1) is $dP_\sigma/dT = 0.070882$ bar/K. The Clapeyron equation, with orthobaric

densities from eqs. (2) and (3) below, yields a derived heat of vaporization, $Q_{vap}$ = 11.583 kJ/mol, as compared with the experimental value 11.587 + .022 kJ/mol of Pierce and Pace [16], (adjusted to the $C^{12}$ molecular weight scale).

(b) Melting Pressures. No data have been found for pressure vs. temperature at the liquid-solid equilibrium of $NF_3$, i.e., the melting line. This boundary is used here in the tables of functions along isobars merely as a low-temperature limit for the tabulations, and for convenience we have substituted the reduced Simon equation for methane, $P = P_t + P_o \cdot [(T/T_t)^{\epsilon} - 1]$, with $P_o$ = 1909.40 bar, $\epsilon$ = 1.85, and $P_t$, $T_t$ for $NF_3$.

## 2.3 The Orthobaric Densities

We have used the present nonanalytic equation of state (which incorporates the vapor-pressure equation) to describe pressure vs. T along experimental pseudo-isochores. For a given density (isochore) it is necessary merely to find the coexistence temperature, $T_\sigma(\rho)$, by iteration for a best "fit" of these data [5], as follows from eq. (6) below for a fixed density (and assuming values of non-linear parameters from preliminary work) -

$$[P - P_\sigma(T_\sigma) - \rho R^* \cdot (T - T_\sigma)]/(\rho^2 R^* T_c) = B \cdot \Phi(\rho, T, T_\sigma) + C \cdot \Psi(\rho, T, T_\sigma) \quad ,$$

wherein B and C are least-squares coefficients for a given density. At densities in the range roughly $\rho_c \pm 30$ percent, the results are unacceptable, but their qualitative behavior suggests gravitational effects on the P-ρ-T data in the critical region, by comparison with published studies of this effect [14,20,23]. The critical density of $NF_3$, 0.562 $g/cm^3$, is large relative to that of many simple substances, e.g., 0.16 $g/cm^3$ for methane.

The behavior of orthobaric densities about the critical point is well known to be described by a term $|T - T_c|^{\epsilon}$ where traditionally the exponent was $\epsilon$ = 1/3, and more recently $\epsilon$ = 0.35 [17]. In the following representations of the orthobaric densities we use $\epsilon$ = 1/3, and a minimum of coefficients by use of data well-removed from the critical temperature.

(a) Saturated Liquid Densities. In table 2 our derived densities are identified by ID = $900^+$, wherein the last two digits are the sequence number of the experimental pseudo-isochore run. The extensive data set of Jarry and Miller from 78 to 170 K at ID = 6 is included with a low weighting. Our calculated densities are roughly 0.4 percent greater than theirs. As the accuracy in each set is believed to be $\pm$ 0.1 percent, the reader of this report

must assume an uncertainty of 0.2 percent about the mean. Our densities are essential for our equation of state in the compressed liquid region. In table 2 the heading X is for $x(T) \equiv (T_c-T)/(T_c-T_t)$, and DDS/DT is for slope of the saturated liquid curve in (mol/L)/K. We represent these densities by use of the further reduced variable, $y(\rho) \equiv (\rho-\rho_c)/(\rho_t-\rho_c)$,

$$y = x + (x^{\varepsilon} - x)\, f(T), \qquad f(T) \equiv a + b \cdot \exp[2 \cdot (1 - T_c/T)] , \quad (2)$$

where $\varepsilon = 1/3$, and

$$a = 0.7543\ 77410, \qquad b = 0.0279\ 75083.$$

The experimental residual, $(y-x)/(x^{\varepsilon}-x)$, in the last column of table 2 was used to develop a functional form for f(T).

(b) Saturated Vapor Densities. In table 3 our densities derived via thermal loops are identified by ID = 43, and results via isochores, the vapor-pressure equation and the equation of state by ID = $900^{+}$. Our recent formulation yields a compressibility factor for saturated vapor which approaches unity at low densities, by use of the vapor-pressure equation [4]. Let $A_o \equiv (Z_c-1)$ where $Z_c$ is value of the compressibility factor at the critical point, and define the variables,

$$\pi(T) \equiv P_\sigma(T)/P_c, \qquad x(T) \equiv T/T_c, \qquad u(T) \equiv 1 - x \ .$$

The saturated vapor densities, $d_g \equiv P_\sigma(T)/[Z_\sigma(T)\ R\ T]$, then are described by

$$Z_\sigma(T) = 1 + A_o \cdot \pi \cdot x^{-2} \cdot f(x) , \quad f(x) \equiv 1 + a \cdot u^{\varepsilon} + b \cdot u + c \cdot u^2, \quad (3)$$

with

$$\varepsilon = 1/3 \qquad b = 0.3800\ 17523$$
$$a = -0.7109\ 56694 \qquad c = 1.6228\ 47586$$

The seventh and eighth columns of table 3 give experimental and calculated values of the compressibility factor for saturated vapor. The next-to-last column gives the experimental values, $F(Z) \equiv (Z-1) \cdot x^2/[A_o \cdot \pi]$, used to develop a functional form for f(x). Very small inaccuracies in low-density data yield large relative errors in the experimental values of (Z-1). The last column of table 3 gives the slope of the saturated vapor densities curve in (mol/L)/K.

## 2.4 Second Virial Coefficients

The truncated virial equation of state (for gas at densities roughly below $\rho_c/5$) may be arranged to

$$(Z - 1)/\rho = B(x) + C(x)\cdot\rho + \ldots \qquad (4)$$

in which we use reduced variables $x \equiv T/T_c$, $\rho \equiv d/d_c$. With P-ρ-T data along seven isotherms from 200 thru 320 K we have obtained values for the second and third virial coefficients, B(x) and C(x), by least squares. Results for C(x) are not highly regular, but for B(x) they are formulated as follows,

$$B(x) = B_1 + B_2/x + B_3/x^3 \ , \qquad (5)$$

$B_1$ = 0.4938 2731 $\qquad$ $B_3$ = -0.3898 3811

$B_2$ = -1.3097 2686

In table 4, column B(T) is the second virial coefficient in $cm^3/mol$, whereas $B^*$ is the dimensionless value B(x) in eq. (4). This equation with C(x) = 0 was used for the thermal loop computations [3,6] to obtain the density at any given (P,T), and to obtain ΔH and ΔS by integration along isotherms from ideal gas states up to the derived, saturated vapor boundary at temperatures up to the normal boiling point.

## 2.5 The Nonanalytic Equation of State

This isochoric equation is modified from those described earlier [3,4,5,6]. It is constrained to a given liquid-vapor coexistence boundary, and yields a maximum in isochoric specific heats at the critical point. It is adjusted to our compressibility data in table 5. Data of Burns and of Van der Waal are not used for the adjustment.

At the critical point the derivatives $\partial\rho/\partial T$ and $\partial\rho/\partial P$ become infinite for any pure fluid. The slightest error in experimental pressures due to gravitational effects therefore will correspond to gross deviations of density in the critical region, as is well known. In present work, P-ρ-T data in the critical region are given a low weighting, where density deviations are several percent.

The form of this nonanalytic equation is

$$P - P_\sigma(\rho) = \rho R^*\cdot[T - T_\sigma(\rho)] + \rho^2 R^* T_c\cdot F(\rho,T) \ , \qquad (6)$$

$$F(\rho,T) \equiv B(\rho)\cdot\Phi(\rho,T) + C(\rho)\cdot\Psi(\rho,T) \ , \qquad (6a)$$

in which, for any given density (isochore), the liquid-vapor coexistence temperature, $T\sigma(\rho)$, is obtained by iteration from eqs. (2) and (3) for the

orthobaric densities, and the vapor pressure, $P_\sigma[T_\sigma(\rho)]$, thus is a function of density. The temperature-dependent functions in eq. (6a) are

$$\Phi(\rho,T) \equiv x^{1/2}\cdot \ell n[T/T_\sigma(\rho)] \quad , \tag{6b}$$

$$\Psi(\rho,T) \equiv \psi(\rho,T) - \psi_\sigma(\rho) \quad , \tag{6c}$$

where $\psi_\sigma(\rho)$ is obtained from $\psi(\rho,T)$ merely by replacing T with $T_\sigma(\rho)$,

$$\psi(\rho,T) \equiv \delta\cdot f_1(T) + (1 - \delta)\cdot f_2(\rho,T) \quad , \tag{6d}$$

$$f_1(T) \equiv \exp[\varepsilon\cdot(1 - x)] \quad , \tag{6e}$$

$$f_2(\rho,T) \equiv 1 - (\omega - \omega^\eta/\eta)/(1 - 1/\eta) \quad . \tag{6f}$$

The parameter, $0 \leq \delta \leq 1$, in eq. (6d) is for relative weighting of the analytic and nonanalytic parts, and --

$$\omega(\rho,T) \equiv [1 - \theta(\rho)/T] \quad , \tag{6g}$$

where $\theta(\rho)$ is a locus of temperatures inside the coexistence envelope

$$\theta(\rho) \equiv T_\sigma(\rho)\cdot\exp[-\alpha\cdot f(\rho)] \quad , \tag{6h}$$

$$f(\rho) \equiv |\rho - 1|^3/(\rho_t - 1)^3 \quad , \tag{6i}$$

and $\rho_t$ is reduced density of liquid at the triple point. The density-dependent coefficients in eq. (6a) are

$$B(\rho) \equiv B_1 + B_2\cdot\rho + B_3\cdot\rho^2 \quad , \tag{6j}$$

$$C(\rho) \equiv (C_1 + C_2\,\rho)\cdot(\rho - 1)\cdot\exp(-\gamma\cdot\rho^m) \quad . \tag{6k}$$

Parameters and least-squares coefficients of (6) for $NF_3$ are

$$\alpha = 1,\ \gamma = 1,\ \delta = 1/2,\ \varepsilon = 1,\ \eta = 1.10,\ m = 1,$$

$B_1$ = 0.5519 9813 920 $\qquad$ $C_1$ = 0.7406 7409 894

$B_2$ = 0.1326 8809 584 $\qquad$ $C_2$ = 0.2937 5371 520

$B_3$ = 0.2060 8495 802

The overall "fit" of present P-ρ-T data is not sensitive to small relative changes in the non-linear parameters, excepting $\eta = 1.10$, which value was not explored. Table 6 gives behavior of coefficients $B(\rho)$, $C(\rho)$.

In present work the assigned critical density was varied to obtain a critical isochore (from the equation of state) having a slope at the critical point equal to that of the vapor-pressure equation, $\partial P/\partial T = dP_\sigma/dT$. Following this, these two slopes at the critical point were constrained to equality via the least-squares program [9,12]. This procedure leads to a critical isotherm free of negative slopes, $(\partial P/\partial \rho)_{T_c}$, as shown in table 7.

The sign of the curvatures of isochores, $\partial^2 P/\partial T^2$, at the coexistence boundary [$T = T_\sigma(\rho)$], is determined uniquely by the sign of $C(\rho)$ because $\partial^2 \Phi/\partial T^2 = 0$ on this boundary. The present compressed liquid isochores for $NF_3$ have positive curvatures $\partial^2 P/\partial T^2$ up to the highest densities (lowest temperatures) measured experimentally, in contrast to experience with other, simple cryogenic fluids. This behavior is obtained from the equation of state via the positive values of $C(\rho)$ at high densities as seen in table 6.

## 2.6 The Ideal Gas Functions

We have formulated specific heats $C_p^o(T)$ for $NF_3$ from the JANAF tables [2] as follows, using $x \equiv T/100$,

$$C_p^o(T)/R = 4 + \exp(-\varepsilon/x) \cdot \sum_{i=1}^{5} A_i \cdot x^{1-i} \quad , \qquad (7)$$

where,

$\varepsilon = 8.76$ $\qquad$ $A_3 = 228.231\ 405$

$A_1 = 6.118\ 9724$ $\qquad$ $A_4 = -249.067\ 052$

$A_2 = 48.162\ 6880$ $\qquad$ $A_5 = 564.293\ 045$

Table 8 shows the "fit" of data used. The calculated values of $(H^o - H_o^o)$ and of $S^o$ are obtained by numerical integrations, starting at T = 300 K. Table 9 gives interpolated values at integral temperatures.

## 2.7 The Heats of Vaporization

Table 10 shows the "fit" of data used for $NF_3$. Those below the boiling-point at ID = 39 we derived via thermal loops as described above, and those at ID = 40 are via the Clapeyron equation. Unpublished, estimated data from the Aerojet Company [1] are given last for comparison, ID = 23. The formulation of these data uses argument $x(T) \equiv (T_c - T)/(T_c - T_t)$,

$$Q_{vap}/Q_t = x + (x^{\varepsilon} - x)\cdot[a + b\cdot x + c\cdot x^2] \quad , \qquad (8)$$

where $\varepsilon = 0.38$, and

$Q_t$ = 14.548 kJ/mol  b = 0.2695 36103

a = 0.9982 47122  c = -0.4050 10672

The experimental residual in the last column of table 10 is

$$[Q_{vap}/Q_t - x]/(x^{\varepsilon} - x) \quad .$$

## 2.8 Specific Heats of Saturated Liquid

Specific heats, $C_\sigma(T)$, along the saturated liquid path, are needed as a base to compute specific heats in compressed liquid states. The techniques described here were developed before the measured data of Weber [22] were available, and they were used to produce the values given in tables 14 and 15. Starting with the ideal gas functions $S^o(T)$, we have used the equation of state and the heats of vaporization to tabulate $S_\sigma(T)$ for the saturated liquid at 35 temperatures from the triple- to the critical point. These are represented in J/mol/K with an rms relative deviation of 0.002 percent by use of $x(T) \equiv T/T_c$, $u(T) \equiv (1-x)$,

$$S_\sigma(T) - S_c = A_1\cdot u^{\varepsilon} + A_2\cdot \ell n(x) + \sum_{i=3}^{7} A_i\cdot u^{i-2} \quad , \qquad (9)$$

where $\varepsilon = 0.33$, and

$S_c$ = 197.03182 J/mol/K  $A_4$ = - 16.4628 7979

$A_1$ = - 27.0414 1165  $A_5$ = 241.1959 696

$A_2$ = 168.4875 348  $A_6$ = -288.5828 349

$A_3$ = 117.5913 487  $A_7$ = 230.9162 107

The specific heats for saturated liquid follow from the relation $C_\sigma(T) = T\cdot dS_\sigma/dT$, in J/mol/K,

$$C_\sigma(T) = -\varepsilon\cdot A_1\cdot x\cdot u^{\varepsilon-1} + A_2 - x\cdot \sum_{i=3}^{7} (i-2)\cdot A_i\cdot u^{i-3} \quad . \qquad (10)$$

Calculated values for $C_\sigma(T)$ appear in the eighth column of page two of table 14.

## 2.9 Specific Heats at Constant Volume

The specific heat at constant volume, $C_v(\rho,T)$, may be calculated from the equation of state and the ideal gas properties by methods outlined in Secion 3. Recently, new experimental data for specific heats have been published by one of us [22]. Since this quantity is a measure of the temperature variation of the state properties (E,H,S) a comparison between calculated and experimental values is useful for estimating uncertainties. Such a comparison with the nonanalytic and with the analytic equation of state is given in fig. 3 and in table 17.

## 2.10 The Analytic Equation of State

For many purposes it is convenient to use an analytic equation of state to represent the properties of a substance. Here we have used the 32 term BWR equation reported by Jacobsen [10], which has the form,

$$
\begin{aligned}
P = {} & \rho RT + \rho^2(A_1T + A_2T^{1/2} + A_3 + A_4/T + A_5/T^2) \\
& + \rho^3(A_6T + A_7 + A_8/T, + A_9/T^2) \\
& + \rho^4(A_{10}T + A_{11} + A_{12}/T) \\
& + \rho^5(A_{13}) \\
& + \rho^6(A_{14}/T + A_{15}/T^2) \\
& + \rho^7(A_{16}/T) \\
& + \rho^8(A_{17}/T + A_{18}/T^2) \\
& + \rho^9(A_{19}/T^2) \qquad (11) \\
& + e^{-\gamma\rho^2}\,[\rho^3(A_{20}/T^2 + A_{21}/T^3) \\
& \qquad + \rho^5(A_{22}/T^2 + A_{23}/T^4) \\
& \qquad + \rho^7(A_{24}/T^2 + A_{25}/T^3) \\
& \qquad + \rho^9(A_{26}/T^2 + A_{27}/T^4) \\
& \qquad + \rho^{11}(A_{28}/T^2 + A_{29}/T^3) \\
& \qquad + \rho^{13}(A_{30}/T^2 + A_{31}/T^3 + A_{32}/T^4)]
\end{aligned}
$$

The parameters are given in table 16 and a listing of the program and subroutines used is given in Appendix D. From the listing it is seen that all of the thermodynamic properties may be calculated quickly and conveniently in closed form as functions of the density and temperature. Since the equation is explicit in pressure, the density must be found by iteration. The FUNCTION FINDD in the appendix is used for this purpose. This equation of state, with 32 adjustable parameters, is much more flexible than the nonanalytic equation; therefore, a large body of precise data is necessary to insure proper behavior. In addition it should not be extrapolated far beyond the bounds of the data, particularly in the direction of higher densities. On the other hand, since the derived properties can be expressed directly in terms of the parameters, other data such

as the specific heats may be included in the fitting process by making use of multiproperty fitting techniques such as described by Hust and McCarty [9].

In applying the equation to $NF_3$ we used the 225 P-ρ-T data of Goodwin [7], 25 points on the saturation boundary calculated from the relations in Section 2.3 above, a few high density points in the compressed liquid between the triple point and 90 K calculated from the nonanalytic equation, 47 single phase specific heats, $C_v$, and 101 saturated liquid specific heats, $C_\sigma$, from ref. [22]. We also included some calculated data which help to insure that the chemical potential is the same for the saturated liquid and vapor at a given temperature, in other words that $\Delta H = T\Delta S$ across the two phase boundary. These data make use of the vapor pressure and orthobaric density equations in Sections 2.2 and 2.3. In addition the equation is constrained to the critical point, and the derivatives $(\partial P/\partial\rho)_T$ and $(\partial^2 P/\partial\rho^2)_T$ are constrained to be zero at the critical point.

This equation, like all analytical equations, does not fit the data well in the critical region. The average absolute deviation in density is 0.50 pct when all of the data are considered. If the deviations of the points in the range 235 - 240 K and $\rho_c \pm 28$ percent are not counted, the average absolute deviation drops to 0.14 percent. The average absolute deviation from the $C_v$ data is 0.97 pct and for the $C_\sigma$ data it is 1.42 pct, which are quite reasonable for this type equation. Some typical deviations are shown in figs. 2 and 3.

## 3. COMPUTATIONAL METHODS
## (Nonanalytic Equation of State)

The numerical values for E and H in this report are based on the assigned value, E = 0 at the liquid triple-point, obtained by use of the arbitrary value, $E_o^o$ = 12340.685 J/mol, for ideal gas at T = 0. Specific heats of Pierce and Pace [16] could be integrated to give the solid at T = 0 as reference state.

### 3.1 The Homogeneous Domain

The homogeneous domain of fig. 1 includes all regions which can be attained along isotherms starting at zero density without crossing the vapor-liquid "dome," and without passing very close to the critical point at $T \geq T_c$.

We start our computations with ideal gas thermodynamic functions at zero density, and then integrate along isotherms by use of the equation of state in the following relations,

$$\Delta E = \int [P - T\cdot(\partial P/\partial T)]\cdot d\rho/\rho^2 \quad , \tag{12}$$

$$\Delta C_v = -T\cdot\int(\partial^2 P/\partial T^2)\cdot d\rho/\rho^2 \quad , \tag{13}$$

$$\Delta S = R\cdot\ell n[P^o/(\rho RT)] + \int[R - (\partial P/\partial T)/\rho]\cdot d\rho/\rho \quad , \tag{14}$$

Equation (14) is for use with initial entropies in hypothetical ideal gas states at $P^o$ = 1 atm. For all other initial states we use

$$\Delta S = -\int(\partial P/\partial T)\cdot d\rho/\rho^2 \quad . \tag{14a}$$

In each $(\rho,T)$ state, reached by above integrations, we compute

$$H = E + P\cdot v \quad , \tag{15}$$

$$C_p = C_v + T\cdot(\partial P/\partial T)^2/(\partial P/\partial\rho)/\rho^2 \quad , \tag{16}$$

$$W^2 = C_p\cdot(\partial P/\partial\rho)/C_v \quad . \tag{17}$$

## 3.2 The Saturated Liquid

At temperatures from the triple point up to the critical point, we first obtain thermofunctions for the saturated vapor via eqs. (12) through (15). We then use eq. (8) for the heat of vaporization, $Q_{vap}$, to compute

$$\Delta H = -Q, \quad \Delta S = \Delta H/T \quad , \tag{18}$$

such that the free energy of vaporization, $\Delta F = \Delta H - T\cdot\Delta S$, is zero. Having obtained H and S for the saturated liquid, we compute $E = H - P\cdot v$.

The single-phase specific heat, $C_v(\rho,T)$, at the saturated liquid boundary is obtained via eq. (10) for $C_\sigma(T)$ and the thermodynamic relation,

$$C_v(\rho,T) = C_\sigma(T) + T\cdot(\partial P/\partial T)\cdot(d\rho_\ell/dT)/\rho_\ell^2 \quad , \tag{19}$$

where $\rho_\ell$ is density of the saturated liquid. Values for $C_p(\rho,T)$ and $W(\rho,T)$ on this boundary follow from eqs. (16) and (17). For liquid at the boiling point we have obtained.

$T_b$ = 144.0935 K, $H_b$ = 5 538.1 J/mol,
$E_b$ = 5 533.4 J/mol, $S_b$ = 147.694 J/mol/K.

### 3.3 The Compressed Liquid

Starting with above values for E, S, and $C_v$ on the saturated liquid boundary, we use eqs. (12), (13), and (14a) to integrate along isotherms, and then obtain H, $C_p$, and W via eqs. (15), (16), and (17).

### 3.4 Subroutine THERMO

In Appendix C, we have prepared a Subroutine, THERMO, for convenience to the reader in computing properties at any random, (P,T) point. ENTRIES at the bottom of this subroutine are given for the two-phase boundaries, in which the independent variable is pressure. The present computational method of integration along isotherms cannot be used on or very near the critical isotherm to obtain $C_v$, $C_p$, or W at supercritical densities or pressures, because the specific heats pass through infinity at the critical point.

### 3.5 Computations With the Analytic Equation

Calculation of the thermodynamic properties by means of the analytic equation is extremely simple. Relations (12-17) are used for this purpose. If, as indicated in Section 2.10, data are included to influence the equation to yield a constant chemical potential across the gas-liquid boundary, we can then perform the integrations indicated in eqs. (12-17) right through the two phase region in closed analytical form, without reference to heats of vaporization or vapor pressures. Examples illustrating these calculations are given in the program listing in the appendix.

## 4. COMMENTS

It is well known that extremely accurate physical properties data are needed for thermodynamic properties computations. In present work we see inherent deficiencies in P-ρ-T data near the critical point due, we believe, to gravity. For this the only remedy apparently is specialized apparatus, because no simple computational procedure is available to make corrections [14].

The orthobaric densities in the critical region are especially important for the Clapeyron equation, and for the present highly-constrained equation of state. They should be measured directly by methods such as those used by Weber [21] or Haynes [8].

Heats of vaporization also always are needed over the widest practical temperature range, and it is obvious also, that a Burnett-type determination of virial coefficients is needed, especially for lower temperatures and densities than available in present work.

The above deficiencies lead to a diminished accuracy, but not to irregularities or inconsistencies with the present, nonanalytic equation of state, as seen by inspecting derivatives of the P-ρ-T surface in tables 7, 11, 12, 14, and 15.

## 5. TABLES OF PHYSICAL AND THERMODYNAMIC PROPERTIES

### 5.1 Calculated P-ρ-T Isochores and Isotherms

Tables 11 and 12 give a selection of isochores and isotherms computed by equation of state (6). These are essential to examine behavior of the P(ρ,T) surface. They are a useful supplement to the isobars of table 15 for interpolating P-ρ-T values and their derivatives.

### 5.2 The Joule-Thomson Inversion Locus

Table 13 gives the P-ρ-T locus of the J.-T. inversion, $(\partial T/\partial P)_H = 0$, obtained from equation of state (6) under the condition $T\,(\partial P/\partial T) = \rho\,(\partial P/\partial \rho)$. This table has been computed to temperatures well above those of P-ρ-T data, to show a maximum in P-T coordinates. In this table under heading DI are given the initial densities used to start the iteration for density in heading MOL/L. We thus know that convergence is attained within present limits of DI $\pm$ 3.2 mol/L, Subroutine JTLOCUS.

### 5.3 Thermophysical Properties of the Saturated Liquid

Table 14 gives physical and thermodynamic properties of saturated liquid, computed by methods of Section 3, using eq. (6). Column headings are interpreted on the first page of this table.

### 5.4 Thermophysical Properties Along Selected Isobars

Table 15 gives physical and thermodynamic properties on isobars, computed by methods of Section 3, using eq. (6). Explanations for this table are given on the first page. This table is extrapolated below the minimum temperature (90 K), and above the maximum pressure ($\sim$ 300 bar) of P-ρ-T data used for adjusting the equation of state.

### 5.5 Results From the Analytic Equation

The derived properties may be calculated from the analytic equation by making use of the subroutines given in Appendix D. A sample program is also included there to illustrate the proper method of utilizing the subroutines. Detailed calculated results are not tabulated in this report because of the space requirements. However, table 17 gives a comparison of several of the derived

properties calculated via the analytic and nonanalytic equations. Since the zero for enthalpy is arbitrary, the equations were adjusted to give the same value for the liquid at the triple point.

Table 17 compares properties computed via the nonanalytic eq. (6) with properties via the BWR-type eq. (11). At given pressures and temperatures, table 17 presents differences [eq. (6) minus eq. (11)] of density in percent; of enthalpy (J/mol); of entropy (J/mol/K); and of the specific heats, $C_v$, $C_p$, in percent. These comparisons serve to indicate the uncertainties in the derived results.

Figure 2 presents a comparison of the deviations of experimental densities from calculated values obtained via the two equations of state: open circles for the nonanalytic equation and filled circles for the BWR-type equation. The greatest relative deviations of several percent, from each equation, occur in the critical region near $\rho_c$ = 7.92 mol/L, and $T_c$ = 234.0 K. This behavior has been encountered often in work on other fluids.

Figure 3 presents a comparison of the deviations of experimental single-phase specific heats [22] from calculated values via the two equations of state: open circles for the nonanalytic equation, and filled circles for the BWR-type equation.

## 6. ACKNOWLEDGMENTS

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## Appendix A. Symbols and Units

Subscripts c and t refer to critical and liquid triple points.

Subscripts g and ℓ refer to saturated vapor and liquid.

Subscript σ refers to liquid-vapor coexistence.

| | |
|---|---|
| $\alpha, \gamma, \delta, \epsilon, \eta$ | non-linear parameters in the equation of state |
| $B(\rho)$, $C(\rho)$ | density-dependent coefficients in the equation of state |
| $B^*(x)$ | reduced second virial coefficient |
| $C_v(\rho,T)$ | isochoric specific heat, (J/mol)/K |
| $C_p(\rho,T)$ | isobaric specific heat, (J/mol)/K |
| $C_\sigma(T)$ | molal heat capacity for saturated liquid, (J/mol)/K |
| d | density, mol/L |
| $E(\rho,T)$ | the internal energy, J/mol |
| $E_o^o$ | 12,340.685 J/mol (arbitrary) |
| $H_o^o$ | enthalpy for ideal gas state at T = 0 |
| $H(\rho,T)$ | the enthalpy, J/mol |
| J | the joule, 1 N-m |
| L | the liter, $10^{-3}m^3$ |
| mol | 71.0019 grams of $NF_3$ ($C^{12}$ scale) |
| P | pressure in bar, 1 bar ≡ $10^5$ $N/m^2$, (1 atm = 1.01325 bar) |
| $P_\sigma(T)$ | the vapor pressure, bar |
| $P_\sigma(\rho)$ | $P_\sigma[T_\sigma(\rho)]$, vapor pressure as function of density |
| $\Phi(\rho,T)$ | function in the equation of state |
| $\Psi(\rho,T)$ | function in the equation of state |
| R | the gas constant, 8.3145 (J/mol)/K, 0.083145 (bar-L/mol)/K |
| $R^*$ | $(0.083145)\cdot d_c$, bar/K, for the equation of state |
| $\rho$ | $d/d_c$, reduced density |
| $S(\rho,T)$ | the entropy, (J/mol)/K |
| T | temperature, K (IPTS 68) |
| $T_\sigma(\rho)$ | liquid-vapor coexistence temperature, K |
| $\theta(\rho)$ | defined locus of temperatures, K |
| $\omega(\rho,T)$ | $[1-\theta(\rho)/T]$, for the equation of state |
| $x(T)$ | $T/T_c$, for the equation of state |
| $x(T)$ | variously defined for other equations |
| $x_\sigma(\rho)$ | $T_\sigma(\rho)/T_c$, reduced coexistence temperature |
| $Z(P,\rho,T)$ | $P/(d\cdot R\cdot T)$, the "compressibility factor" |

## Appendix B. Fixed-Point Values Used for $NF_3$

| | Triple Point | Boiling Point | Critical Point |
|---|---|---|---|
| Temperature, K | 66.35 | 144.0935 | 234.0 |
| Pressure, bar | $1.85425 \cdot 10^{-6}$ | 1.01325 | 44.60713 |
| Density, mol/L | | | |
| Vapor | $3.3612 \cdot 10^{-7}$ | $8.782 \cdot 10^{-2}$ | 7.92 |
| Liquid | 26.320 | 21.662 | 7.92 |

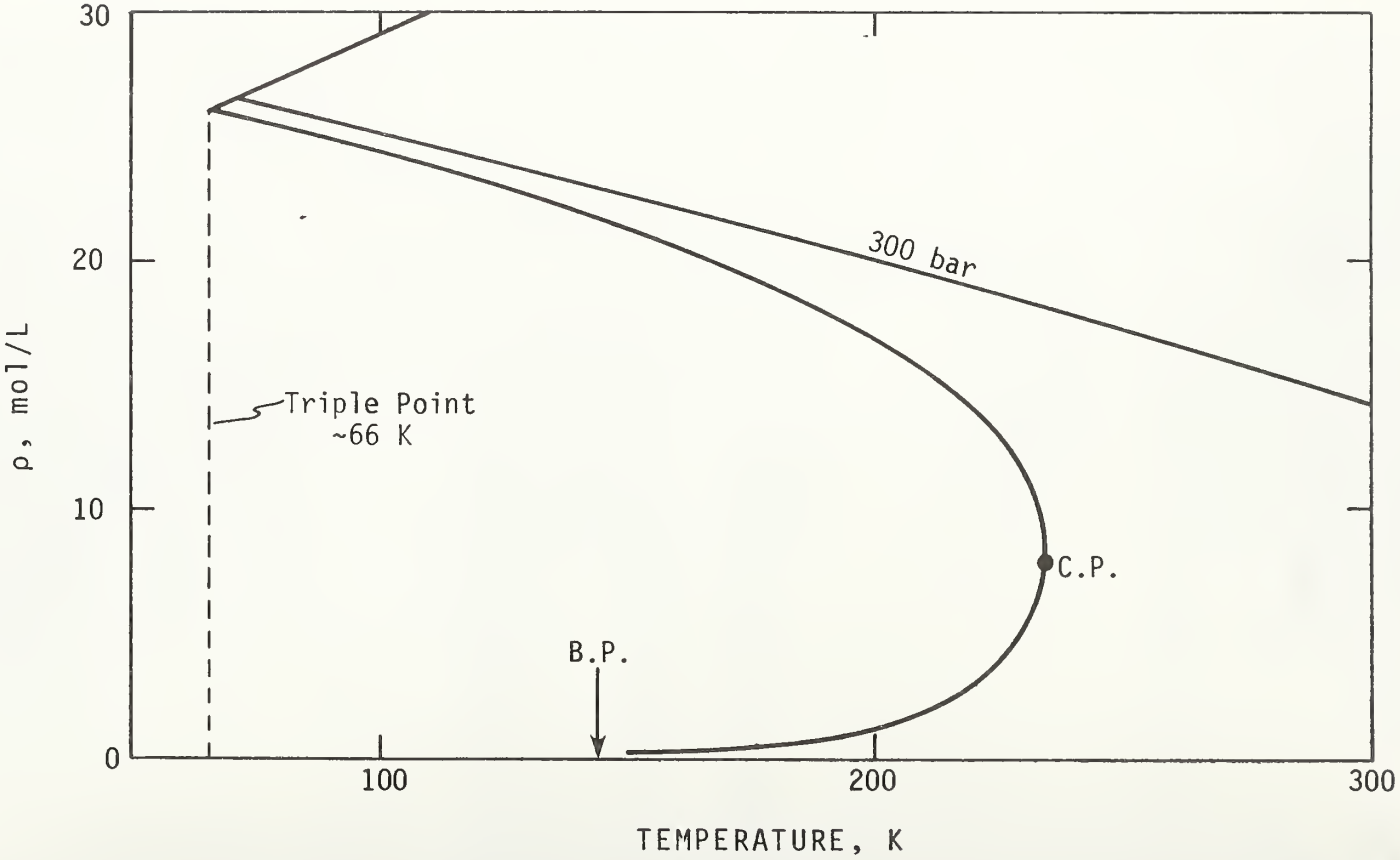


Figure 1. Density-Temperature Phase Diagram for Nitrogen Trifluoride.

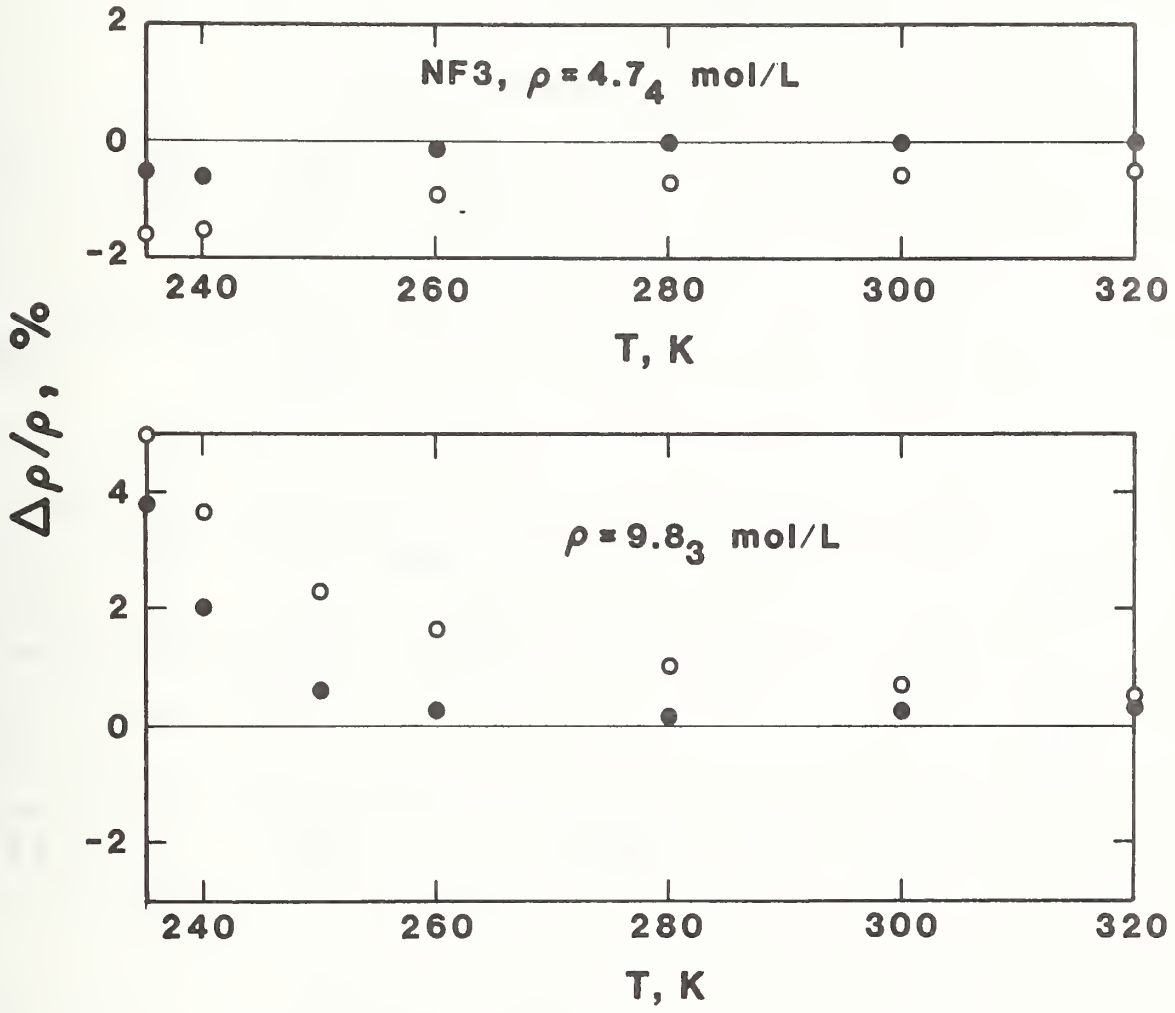


Figure 2. Comparisons of experimental with calculated densities: open circles for eq. (6); filled circles for eq. (11).

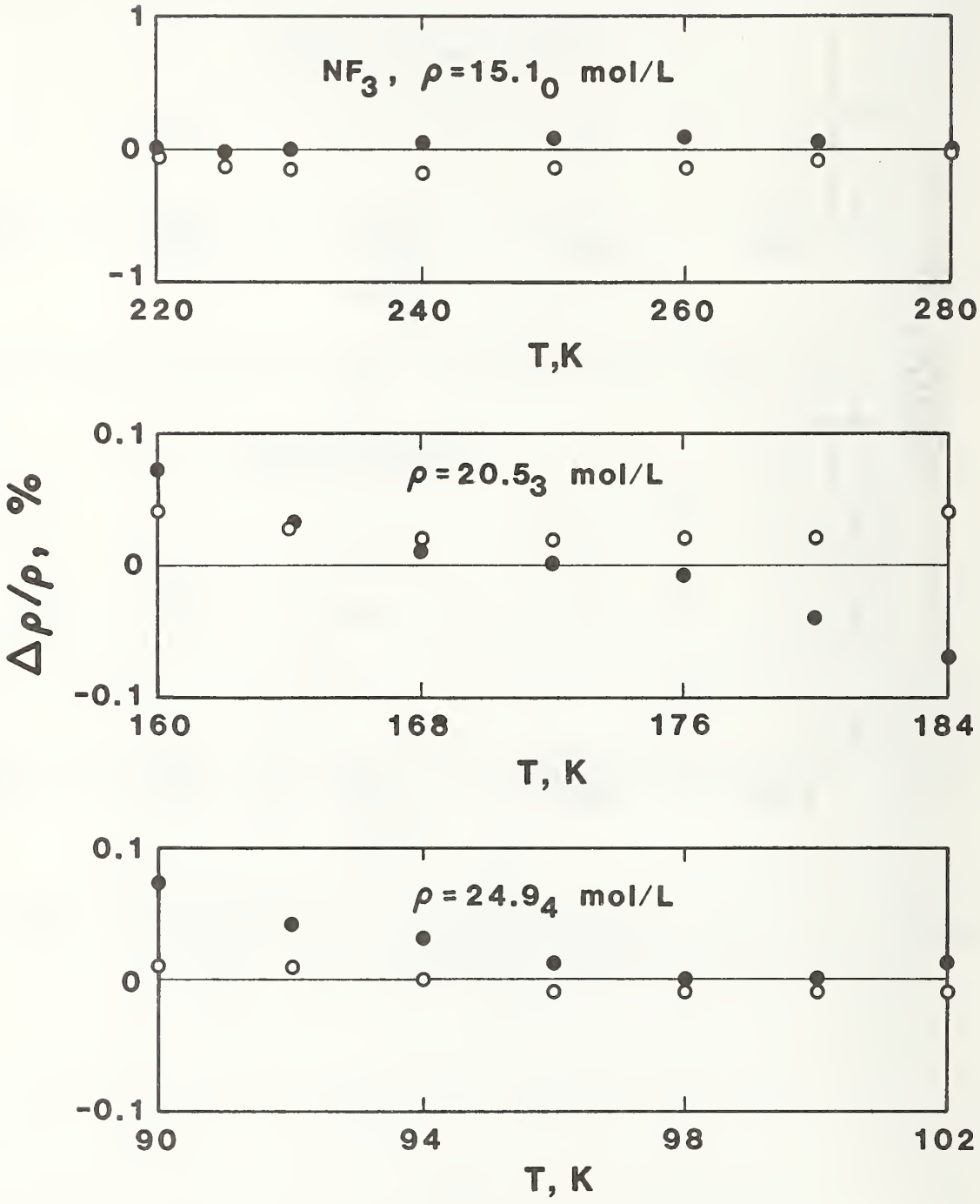


Figure 2, Continued. Comparisons of experimental with calculated densities: open circles for eq. (6); filled circles for eq. (11).

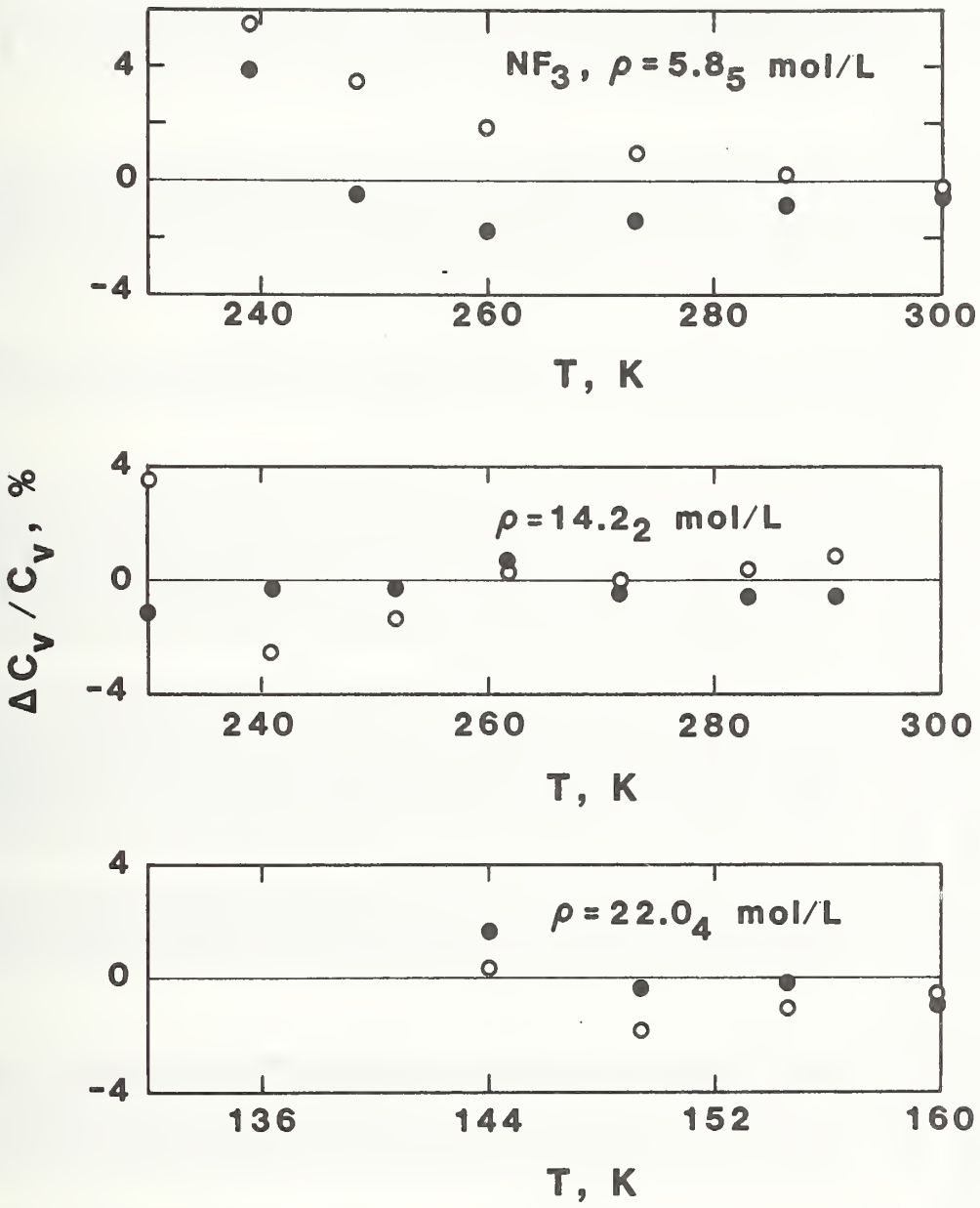


Figure 3. Comparisons of experimental with calculated specific heats: open circles for eq. (6); filled circles for eq. (11).

NF3 VAPOR PRESSURES, EPP = 1.750

(3)PIERCE(1954), (6)JARRY(1956), (10)MENZEL(1933).
(43)THERMALOOPS VIA NBS VIRIAL, (100+)NBS(1979).

TTRP = 66.350, TCRT = 234.000
PTRP = .18543E-05, PCRT = 44.607130, DPSDT = 1.24509

20.315417602 -8.362069370 -21.398986401 20.162194616 -6.918662727 3.677799375

| ID | WT | T,K | X | P,BAR | CALCD | PCNT | DPS/DT | RESID |
|---|---|---|---|---|---|---|---|---|
| 43 | 1.000 | 66.360 | .28359 | .18618E-05 | .18616E-05 | .01 | .740E-06 | .00003 |
| 43 | 1.000 | 70.000 | .29915 | .72869E-05 | .72864E-05 | .01 | .258E-05 | .00775 |
| 43 | 1.000 | 75.000 | .32051 | .37541E-04 | .37543E-04 | -.01 | .114E-04 | .01600 |
| 43 | 1.000 | 80.000 | .34188 | .15456E-03 | .15459E-03 | -.02 | .407E-04 | .02209 |
| 43 | 1.000 | 85.000 | .36325 | .52979E-03 | .52988E-03 | -.02 | .122E-03 | .02648 |
| 43 | 1.000 | 90.000 | .38462 | .15606E-02 | .15607E-02 | -.01 | .316E-03 | .02952 |
| 43 | 1.000 | 95.000 | .40598 | .40503E-02 | .40503E-02 | -.00 | .727E-03 | .03147 |
| 43 | 1.000 | 100.000 | .42735 | .94488E-02 | .94476E-02 | .01 | .151E-02 | .03257 |
| 43 | 1.000 | 105.000 | .44872 | .20134E-01 | .20129E-01 | .02 | .288E-02 | .03299 |
| 43 | 1.000 | 110.000 | .47009 | .39703E-01 | .39693E-01 | .03 | .511E-02 | .03285 |
| 43 | 1.000 | 115.000 | .49145 | .73243E-01 | .73228E-01 | .02 | .853E-02 | .03227 |
| 43 | 1.000 | 120.000 | .51282 | .12755E+00 | .12753E+00 | .01 | .135E-01 | .03136 |
| 43 | 1.000 | 125.000 | .53419 | .21125E+00 | .21126E+00 | -.00 | .204E-01 | .03017 |
| 43 | 1.000 | 130.000 | .55556 | .33490E+00 | .33496E+00 | -.02 | .295E-01 | .02879 |
| 43 | 1.000 | 135.000 | .57692 | .51089E+00 | .51107E+00 | -.04 | .414E-01 | .02725 |
| 43 | 1.000 | 140.000 | .59829 | .75349E+00 | .75383E+00 | -.05 | .562E-01 | .02562 |
| 801 | 0.000 | 160.000 | .68376 | .27530E+01 | .27295E+01 | .86 | .152E+00 | .01917 |
| 1501 | 0.000 | 165.000 | .70513 | .35954E+01 | .35700E+01 | .71 | .185E+00 | .01733 |
| 802 | 0.000 | 170.000 | .72650 | .45999E+01 | .45906E+01 | .20 | .224E+00 | .01532 |
| 1502 | 1.000 | 175.000 | .74786 | .58197E+01 | .58133E+01 | .11 | .266E+00 | .01360 |
| 803 | 0.000 | 180.000 | .76923 | .72350E+01 | .72608E+01 | -.36 | .314E+00 | .01171 |
| 1503 | 1.000 | 185.000 | .79060 | .89548E+01 | .89564E+01 | -.02 | .366E+00 | .01035 |
| 804 | 1.000 | 190.000 | .81197 | .10923E+02 | .10924E+02 | -.01 | .422E+00 | .00886 |
| 1504 | 1.000 | 195.000 | .83333 | .13182E+02 | .13189E+02 | -.05 | .484E+00 | .00743 |
| 805 | 1.000 | 200.000 | .85470 | .15775E+02 | .15776E+02 | -.01 | .552E+00 | .00612 |
| 1505 | 1.000 | 205.000 | .87607 | .18706E+02 | .18714E+02 | -.04 | .625E+00 | .00485 |
| 806 | 1.000 | 210.000 | .89744 | .22037E+02 | .22033E+02 | .02 | .704E+00 | .00374 |
| 1506 | 1.000 | 215.000 | .91880 | .25763E+02 | .25767E+02 | -.01 | .791E+00 | .00268 |
| 2601 | 1.000 | 215.000 | .91880 | .25781E+02 | .25767E+02 | .05 | .791E+00 | .00272 |
| 807 | 1.000 | 220.000 | .94017 | .29963E+02 | .29954E+02 | .03 | .886E+00 | .00177 |
| 1507 | 1.000 | 220.000 | .94017 | .29956E+02 | .29954E+02 | .01 | .886E+00 | .00176 |
| 808 | 1.000 | 225.000 | .96154 | .34641E+02 | .34645E+02 | -.01 | .992E+00 | .00095 |
| 1508 | 1.000 | 225.000 | .96154 | .34647E+02 | .34645E+02 | .01 | .992E+00 | .00096 |
| 2501 | 1.000 | 225.000 | .96154 | .34664E+02 | .34645E+02 | .05 | .992E+00 | .00099 |

Table 1. Vapor Pressures of $NF_3$.

NF3 VAPOR PRESSURES, EPP = 1.750

| ID | WT | T,K | X | P,BAR | CALCD | PCNT | DPS/DT | RESID |
|---|---|---|---|---|---|---|---|---|
| 809 | 1.000 | 230.000 | .98291 | .39917E+02 | .39907E+02 | .03 | .112E+01 | .00035 |
| 1001 | 1.000 | 230.000 | .98291 | .39887E+02 | .39907E+02 | -.05 | .112E+01 | .00030 |
| 1101 | 1.000 | 230.000 | .98291 | .39906E+02 | .39907E+02 | -.00 | .112E+01 | .00033 |
| 1201 | 1.000 | 230.000 | .98291 | .39901E+02 | .39907E+02 | -.01 | .112E+01 | .00032 |
| 1301 | 1.000 | 230.000 | .98291 | .39904E+02 | .39907E+02 | -.01 | .112E+01 | .00033 |
| 1401 | 1.000 | 230.000 | .98291 | .39904E+02 | .39907E+02 | -.01 | .112E+01 | .00033 |
| 1601 | 1.000 | 230.000 | .98291 | .39862E+02 | .39907E+02 | -.11 | .112E+01 | .00027 |
| 2301 | 1.000 | 230.000 | .98291 | .39921E+02 | .39907E+02 | .04 | .112E+01 | .00035 |
| 1002 | 1.000 | 231.000 | .98718 | .41015E+02 | .41036E+02 | -.05 | .114E+01 | .00020 |
| 1102 | 1.000 | 231.000 | .98718 | .41037E+02 | .41036E+02 | .00 | .114E+01 | .00023 |
| 1202 | 1.000 | 231.000 | .98718 | .41033E+02 | .41036E+02 | -.01 | .114E+01 | .00023 |
| 1302 | 1.000 | 231.000 | .98718 | .41029E+02 | .41036E+02 | -.02 | .114E+01 | .00022 |
| 1402 | 1.000 | 231.000 | .98718 | .41035E+02 | .41036E+02 | -.00 | .114E+01 | .00023 |
| 810 | 1.000 | 232.000 | .99145 | .42203E+02 | .42195E+02 | .02 | .117E+01 | .00015 |
| 1003 | 1.000 | 232.000 | .99145 | .42173E+02 | .42195E+02 | -.05 | .117E+01 | .00011 |
| 1103 | 1.000 | 232.000 | .99145 | .42190E+02 | .42195E+02 | -.01 | .117E+01 | .00013 |
| 1203 | 1.000 | 232.000 | .99145 | .42193E+02 | .42195E+02 | -.00 | .117E+01 | .00014 |
| 1303 | 1.000 | 232.000 | .99145 | .42211E+02 | .42195E+02 | .04 | .117E+01 | .00016 |
| 1403 | 1.000 | 232.000 | .99145 | .42204E+02 | .42195E+02 | .02 | .117E+01 | .00015 |
| 811 | 1.000 | 233.000 | .99573 | .43392E+02 | .43384E+02 | .02 | .121E+01 | .00007 |
| 1104 | 1.000 | 233.000 | .99573 | .43389E+02 | .43384E+02 | .01 | .121E+01 | .00007 |
| 1204 | 1.000 | 233.000 | .99573 | .43391E+02 | .43384E+02 | .02 | .121E+01 | .00007 |
| 1304 | 1.000 | 233.000 | .99573 | .43397E+02 | .43384E+02 | .03 | .121E+01 | .00008 |
| 1404 | 1.000 | 233.000 | .99573 | .43395E+02 | .43384E+02 | .03 | .121E+01 | .00008 |
| 3 | 0.000 | 85.814 | .36673 | .96660E-03 | .63786E-03 | 51.54 | .144E-03 | .05152 |
| 3 | 0.000 | 92.064 | .39344 | .25598E-02 | .23465E-02 | 9.09 | .452E-03 | .03556 |
| 3 | 0.000 | 98.078 | .41914 | .69728E-02 | .69013E-02 | 1.04 | .115E-02 | .03284 |
| 3 | 0.000 | 103.892 | .44398 | .17865E-01 | .17144E-01 | 4.21 | .251E-02 | .03536 |
| 3 | 0.000 | 109.494 | .46792 | .37544E-01 | .37176E-01 | .99 | .484E-02 | .03345 |
| 3 | 0.000 | 114.854 | .49083 | .72354E-01 | .71992E-01 | .50 | .841E-02 | .03258 |
| 3 | 0.000 | 119.924 | .51250 | .12658E+00 | .12651E+00 | .05 | .134E-01 | .03140 |
| 3 | 0.000 | 124.522 | .53215 | .20134E+00 | .20171E+00 | -.18 | .196E-01 | .03019 |
| 3 | 0.000 | 129.689 | .55423 | .32505E+00 | .32587E+00 | -.25 | .289E-01 | .02874 |
| 3 | 0.000 | 134.653 | .57544 | .49540E+00 | .49687E+00 | -.30 | .405E-01 | .02721 |
| 3 | 0.000 | 139.762 | .59727 | .73822E+00 | .74054E+00 | -.31 | .555E-01 | .02554 |
| 3 | 0.000 | 144.523 | .61762 | .10405E+01 | .10440E+01 | -.34 | .726E-01 | .02390 |
| 6 | 0.000 | 89.320 | .38171 | .13332E-02 | .13582E-02 | -1.84 | .280E-03 | .02808 |
| 6 | 0.000 | 94.130 | .40226 | .33331E-02 | .34592E-02 | -3.64 | .634E-03 | .02902 |
| 6 | 0.000 | 98.980 | .42299 | .78927E-02 | .80110E-02 | -1.48 | .131E-02 | .03153 |
| 6 | 0.000 | 103.860 | .44385 | .17119E-01 | .17064E-01 | .32 | .250E-02 | .03312 |
| 6 | 0.000 | 108.570 | .46397 | .33051E-01 | .32924E-01 | .38 | .437E-02 | .03315 |
| 6 | 0.000 | 113.690 | .48585 | .63181E-01 | .62742E-01 | .70 | .750E-02 | .03286 |
| 6 | 0.000 | 118.480 | .50632 | .10884E+00 | .10835E+00 | .45 | .118E-01 | .03192 |

Table 1. Continued.

NF3 VAPOR PRESSURES, EPP = 1.750

| ID | WT | T,K | X | P,BAR | CALCD | PCNT | DPS/DT | RESID |
|---|---|---|---|---|---|---|---|---|
| 6 | 0.000 | 123.150 | .52628 | .17709E+00 | .17622E+00 | .49 | .176E-01 | .03092 |
| 6 | 0.000 | 127.600 | .54530 | .27086E+00 | .26985E+00 | .37 | .248E-01 | .02970 |
| 6 | 0.000 | 131.940 | .56385 | .39725E+00 | .39632E+00 | .23 | .338E-01 | .02836 |
| 6 | 0.000 | 136.070 | .58150 | .55770E+00 | .55690E+00 | .14 | .443E-01 | .02702 |
| 6 | 0.000 | 140.160 | .59897 | .76404E+00 | .76287E+00 | .15 | .568E-01 | .02568 |
| 6 | 0.000 | 144.170 | .61611 | .10189E+01 | .10187E+01 | .02 | .712E-01 | .02424 |
| 6 | 0.000 | 148.960 | .63658 | .14064E+01 | .14067E+01 | -.02 | .914E-01 | .02255 |
| 6 | 0.000 | 153.790 | .65722 | .19090E+01 | .19044E+01 | .24 | .115E+00 | .02100 |
| 6 | 0.000 | 158.660 | .67803 | .25919E+01 | .25321E+01 | 2.36 | .143E+00 | .02051 |
| 6 | 0.000 | 163.510 | .69876 | .34187E+01 | .33017E+01 | 3.54 | .175E+00 | .01948 |
| 6 | 0.000 | 168.390 | .71962 | .43833E+01 | .42410E+01 | 3.36 | .211E+00 | .01769 |
| 6 | 0.000 | 173.350 | .74081 | .56246E+01 | .53861E+01 | 4.43 | .252E+00 | .01663 |
| 6 | 0.000 | 178.260 | .76179 | .70036E+01 | .67301E+01 | 4.06 | .297E+00 | .01482 |
| 6 | 0.000 | 183.150 | .78269 | .86572E+01 | .82986E+01 | 4.32 | .346E+00 | .01342 |
| 6 | 0.000 | 188.020 | .80350 | .10518E+02 | .10111E+02 | 4.02 | .399E+00 | .01177 |
| 6 | 0.000 | 193.140 | .82538 | .12656E+02 | .12310E+02 | 2.81 | .461E+00 | .00960 |
| 6 | 0.000 | 198.050 | .84637 | .15205E+02 | .14727E+02 | 3.25 | .525E+00 | .00851 |
| 6 | 0.000 | 203.130 | .86808 | .18032E+02 | .17573E+02 | 2.61 | .597E+00 | .00685 |
| 6 | 0.000 | 208.010 | .88893 | .21202E+02 | .20665E+02 | 2.60 | .672E+00 | .00569 |
| 6 | 0.000 | 217.930 | .93132 | .28647E+02 | .28163E+02 | 1.72 | .845E+00 | .00313 |
| 6 | 0.000 | 222.950 | .95278 | .33265E+02 | .32657E+02 | 1.86 | .947E+00 | .00235 |
| 6 | 0.000 | 227.800 | .97350 | .38365E+02 | .37515E+02 | 2.26 | .106E+01 | .00190 |
| 6 | 0.000 | 232.770 | .99474 | .44087E+02 | .43107E+02 | 2.27 | .120E+01 | .00140 |
| 10 | 0.000 | 79.850 | .34124 | .19998E-03 | .14858E-03 | 34.59 | .393E-04 | .03943 |
| 10 | 0.000 | 87.650 | .37457 | .11999E-02 | .95561E-03 | 25.56 | .205E-03 | .04164 |
| 10 | 0.000 | 92.750 | .39637 | .30664E-02 | .26750E-02 | 14.63 | .507E-03 | .03875 |
| 10 | 0.000 | 99.350 | .42457 | .90659E-02 | .85087E-02 | 6.55 | .138E-02 | .03620 |
| 10 | 0.000 | 101.050 | .43184 | .11732E-01 | .11152E-01 | 5.20 | .174E-02 | .03568 |
| 10 | 0.000 | 106.550 | .45534 | .25065E-01 | .25038E-01 | .11 | .347E-02 | .03304 |
| 10 | 0.000 | 108.650 | .46432 | .33597E-01 | .33276E-01 | .97 | .441E-02 | .03348 |
| 10 | 0.000 | 110.150 | .47073 | .40530E-01 | .40466E-01 | .16 | .520E-02 | .03291 |
| 10 | 0.000 | 135.850 | .58056 | .54569E+00 | .54722E+00 | -.28 | .437E-01 | .02684 |
| 10 | 0.000 | 142.450 | .60876 | .89379E+00 | .90186E+00 | -.89 | .647E-01 | .02429 |
| 10 | 0.000 | 143.390 | .61278 | .96285E+00 | .96433E+00 | -.15 | .682E-01 | .02440 |
| 10 | 0.000 | 144.080 | .61573 | .10086E+01 | .10123E+01 | -.37 | .708E-01 | .02404 |
| 10 | 0.000 | 144.370 | .61697 | .10307E+01 | .10330E+01 | -.22 | .720E-01 | .02403 |

NP = 54, RMSPCT = .033

Table 1. Continued.

Table 2. Densities of Saturated Liquid.

NF3 SATLIQUID DENSITIES, EL = .333
(6)JARRY, (11)SESHADRI, (900)NBS V.P.,ISOCHORES/EQNSTATE.
TTRP = 66.350, TCRT = 234.000, DTRP = 26.320, DCRT = 7.920
.754377410 .027975083 0.000000000

| ID | WT | T,K | X | MOL/L | CALCD | PCNT | DDS/DT | RESID |
|---|---|---|---|---|---|---|---|---|
| 935 | 1.000 | 89.012 | .86483 | 25.013 | 25.055 | -.17 | -.05718 | .72962 |
| 934 | 1.000 | 105.189 | .76833 | 24.124 | 24.112 | .05 | -.05942 | .76116 |
| 933 | 1.000 | 123.055 | .66177 | 23.022 | 23.025 | -.01 | -.06247 | .75832 |
| 932 | 1.000 | 142.576 | .54533 | 21.762 | 21.764 | -.01 | -.06699 | .76180 |
| 931 | 1.000 | 158.678 | .44928 | 20.651 | 20.645 | .03 | -.07232 | .76628 |
| 930 | 1.000 | 174.718 | .35361 | 19.438 | 19.426 | .06 | -.08021 | .77042 |
| 929 | 1.000 | 184.904 | .29285 | 18.555 | 18.574 | -.10 | -.08756 | .76811 |
| 928 | 1.000 | 197.490 | .21778 | 17.422 | 17.392 | .17 | -.10140 | .77798 |
| 927 | 1.000 | 207.954 | .15536 | 16.234 | 16.237 | -.02 | -.12116 | .77569 |
| 926 | 1.000 | 215.559 | .11000 | 15.216 | 15.228 | -.08 | -.14673 | .77619 |
| 924 | 1.000 | 221.420 | .07504 | 14.267 | 14.273 | -.04 | -.18296 | .77835 |
| 6 | .020 | 78.040 | .93027 | 25.619 | 25.675 | -.22 | -.05585 | .68877 |
| 6 | .020 | 79.090 | .92401 | 25.549 | 25.616 | -.26 | -.05597 | .68148 |
| 6 | .020 | 79.430 | .92198 | 25.520 | 25.597 | -.30 | -.05601 | .67367 |
| 6 | .020 | 81.670 | .90862 | 25.380 | 25.471 | -.36 | -.05628 | .67185 |
| 6 | .020 | 87.220 | .87551 | 25.070 | 25.157 | -.35 | -.05696 | .69683 |
| 6 | .020 | 87.650 | .87295 | 24.999 | 25.133 | -.53 | -.05701 | .66781 |
| 6 | .020 | 92.210 | .84575 | 24.788 | 24.871 | -.33 | -.05760 | .71039 |
| 6 | .020 | 94.260 | .83352 | 24.619 | 24.753 | -.54 | -.05787 | .68818 |
| 6 | .020 | 97.000 | .81718 | 24.506 | 24.594 | -.36 | -.05824 | .71563 |
| 6 | .020 | 99.440 | .80262 | 24.323 | 24.451 | -.52 | -.05858 | .70129 |
| 6 | .020 | 101.780 | .78867 | 24.225 | 24.314 | -.37 | -.05892 | .72060 |
| 6 | .020 | 104.060 | .77507 | 24.056 | 24.179 | -.51 | -.05925 | .70989 |
| 6 | .020 | 109.900 | .74023 | 23.704 | 23.831 | -.53 | -.06015 | .71530 |
| 6 | .020 | 114.780 | .71112 | 23.422 | 23.535 | -.48 | -.06096 | .72397 |
| 6 | .020 | 119.460 | .68321 | 23.140 | 23.248 | -.46 | -.06179 | .72885 |
| 6 | .020 | 119.520 | .68285 | 23.140 | 23.244 | -.45 | -.06180 | .72991 |
| 6 | .020 | 124.490 | .65321 | 22.830 | 22.935 | -.45 | -.06275 | .73275 |
| 6 | .020 | 129.410 | .62386 | 22.535 | 22.624 | -.39 | -.06377 | .73897 |
| 6 | .020 | 131.050 | .61408 | 22.436 | 22.519 | -.37 | -.06413 | .74114 |
| 6 | .020 | 134.220 | .59517 | 22.253 | 22.314 | -.27 | -.06485 | .74715 |
| 6 | .020 | 135.340 | .58849 | 22.168 | 22.241 | -.33 | -.06512 | .74497 |
| 6 | .020 | 139.150 | .56576 | 21.943 | 21.992 | -.22 | -.06607 | .75145 |
| 6 | .020 | 139.930 | .56111 | 21.859 | 21.940 | -.37 | -.06627 | .74490 |
| 6 | .020 | 143.990 | .53689 | 21.633 | 21.669 | -.16 | -.06738 | .75540 |
| 6 | .020 | 144.650 | .53296 | 21.549 | 21.624 | -.35 | -.06757 | .74775 |
| 6 | .020 | 149.330 | .50504 | 21.239 | 21.305 | -.31 | -.06899 | .75111 |
| 6 | .020 | 153.920 | .47766 | 20.901 | 20.984 | -.40 | -.07054 | .74930 |
| 6 | .020 | 158.520 | .45022 | 20.577 | 20.656 | -.38 | -.07226 | .75156 |
| 6 | .020 | 164.150 | .41664 | 20.197 | 20.243 | -.23 | -.07464 | .75873 |
| 6 | .020 | 169.530 | .38455 | 19.802 | 19.834 | -.16 | -.07727 | .76238 |
| ID | WT | T,K | X | MOL/L | CALCD | PCNT | DDS/DT | RESID |
| 925 | 0.000 | 226.509 | .04468 | 13.227 | 13.197 | .23 | -.24950 | .78591 |
| 923 | 0.000 | 230.872 | .01866 | 11.986 | 11.809 | 1.49 | -.42936 | .82051 |
| 922 | 0.000 | 233.122 | .00524 | 10.844 | 10.440 | 3.87 | -.97199 | .91258 |
| 915 | 0.000 | 233.662 | .00202 | 10.188 | 9.746 | 4.53 | -1.81660 | .97532 |
| 11 | 0.000 | 170.000 | .38175 | 19.646 | 19.798 | -.77 | -.07752 | .74360 |
| 11 | 0.000 | 180.000 | .32210 | 18.762 | 18.993 | -1.22 | -.08372 | .73510 |
| 11 | 0.000 | 190.000 | .26245 | 17.794 | 18.116 | -1.78 | -.09234 | .72567 |
| 11 | 0.000 | 200.000 | .20280 | 16.750 | 17.133 | -2.23 | -.10519 | .72029 |
| 11 | 0.000 | 205.000 | .17298 | 16.181 | 16.585 | -2.43 | -.11437 | .71837 |
| 11 | 0.000 | 210.000 | .14316 | 15.528 | 15.984 | -2.85 | -.12669 | .71144 |
| 11 | 0.000 | 215.000 | .11333 | 14.815 | 15.309 | -3.23 | -.14427 | .70531 |
| 11 | 0.000 | 220.000 | .08351 | 14.065 | 14.525 | -3.17 | -.17188 | .70830 |
| 11 | 0.000 | 225.000 | .05368 | 13.123 | 13.553 | -3.17 | -.22328 | .70811 |
| 11 | 0.000 | 230.000 | .02386 | 11.696 | 12.155 | -3.78 | -.36776 | .68688 |

NP = 41, RMSPCT = .121

NF3 SATVAPOR DENSITIES, NF = 3, EG = .333, EGX = 2.00
(11)SESHADRI/VISWANETH/KULOOR(1970), (43)THERMALOOPS VIA NBS NF3 VIRIAL.
(900)NBS V.P.,ISOCHORES/EQNSTATE.
TTRP = 66.350, TCRT = 234.000, DGAT = .3361185E-06, DCRT = 7.920
-.7109566941E+00 .3800175233E+00 .1622847586E+01

| ID | WT | T,K | MOL/L | CALCD | PCNT | Z,XPT | Z,CALC | F(Z) | DDS/DT |
|---|---|---|---|---|---|---|---|---|---|
| 43 | .000 | 66.360 | .33744E-06 | .33741E-06 | .01 | .99990 | 1.00000 | 274.56544 | .129E-06 |
| 43 | .000 | 70.000 | .12520E-05 | .12519E-05 | .01 | .99995 | 1.00000 | 41.47800 | .425E-06 |
| 43 | .000 | 75.000 | .60203E-05 | .60206E-05 | -.01 | 1.00004 | .99999 | -7.21144 | .175E-05 |
| 43 | .000 | 80.000 | .23238E-04 | .23241E-04 | -.01 | 1.00011 | .99997 | -5.11385 | .583E-05 |
| 43 | .000 | 85.000 | .74972E-04 | .74982E-04 | -.01 | 1.00005 | .99992 | -.80112 | .164E-04 |
| 43 | .001 | 90.000 | .20860E-03 | .20861E-03 | -.01 | .99985 | .99979 | .87346 | .400E-04 |
| 43 | .005 | 95.000 | .51307E-03 | .51302E-03 | .01 | .99943 | .99953 | 1.45589 | .867E-04 |
| 43 | .013 | 100.000 | .11377E-02 | .11374E-02 | .03 | .99875 | .99904 | 1.51184 | .171E-03 |
| 43 | .029 | 105.000 | .23108E-02 | .23098E-02 | .04 | .99779 | .99822 | 1.38592 | .309E-03 |
| 43 | .054 | 110.000 | .43555E-02 | .43534E-02 | .05 | .99643 | .99690 | 1.24733 | .523E-03 |
| 43 | .089 | 115.000 | .77009E-02 | .76974E-02 | .05 | .99450 | .99495 | 1.13927 | .833E-03 |
| 43 | .133 | 120.000 | .12887E-01 | .12883E-01 | .03 | .99187 | .99219 | 1.05232 | .126E-02 |
| 43 | .184 | 125.000 | .20567E-01 | .20564E-01 | .02 | .98831 | .98847 | .99102 | .183E-02 |
| 43 | .241 | 130.000 | .31502E-01 | .31505E-01 | -.01 | .98372 | .98363 | .94189 | .257E-02 |
| 43 | .300 | 135.000 | .46557E-01 | .46577E-01 | -.04 | .97797 | .97756 | .90069 | .349E-02 |
| 43 | .360 | 140.000 | .66707E-01 | .66753E-01 | -.07 | .97082 | .97015 | .86997 | .462E-02 |
| 900 | .565 | 158.061 | .20000E+00 | .20000E+00 | -.00 | .93117 | .93116 | .80562 | .107E-01 |
| 906 | .752 | 179.292 | .55000E+00 | .55006E+00 | -.01 | .85881 | .85871 | .73907 | .235E-01 |
| 901 | .859 | 196.355 | .10965E+01 | .10946E+01 | .17 | .77406 | .77542 | .72078 | .421E-01 |
| 905 | .897 | 204.133 | .14742E+01 | .14728E+01 | .09 | .72653 | .72720 | .71876 | .560E-01 |
| 902 | .927 | 211.352 | .19429E+01 | .19414E+01 | .08 | .67366 | .67417 | .72669 | .753E-01 |
| 903 | .954 | 218.455 | .25761E+01 | .25789E+01 | -.11 | .61142 | .61075 | .74319 | .107E+00 |
| 909 | .967 | 222.493 | .30616E+01 | .30709E+01 | -.30 | .56900 | .56727 | .75911 | .139E+00 |
| 907 | 0.000 | 226.484 | .36818E+01 | .37210E+01 | -1.05 | .52130 | .51581 | .77895 | .193E+00 |
| 916 | 0.000 | 230.853 | .47629E+01 | .48321E+01 | -1.43 | .44704 | .44063 | .82676 | .350E+00 |
| 917 | 0.000 | 233.116 | .57980E+01 | .59436E+01 | -2.45 | .38729 | .37780 | .87715 | .768E+00 |
| 910 | 0.000 | 233.123 | .58275E+01 | .59490E+01 | -2.04 | .38539 | .37752 | .87975 | .772E+00 |
| 11 | 0.000 | 110.000 | .43764E-02 | .43534E-02 | .53 | .99167 | .99690 | 2.91054 | .523E-03 |
| 11 | 0.000 | 120.000 | .12963E-01 | .12883E-01 | .62 | .98606 | .99219 | 1.80516 | .126E-02 |
| 11 | 0.000 | 130.000 | .31666E-01 | .31505E-01 | .51 | .97862 | .98363 | 1.23662 | .257E-02 |
| 11 | 0.000 | 140.000 | .66979E-01 | .66753E-01 | .34 | .96688 | .97015 | .98750 | .462E-02 |
| 11 | 0.000 | 160.000 | .22999E+00 | .22163E+00 | 3.77 | .89212 | .92578 | 1.16005 | .116E-01 |
| 11 | 0.000 | 170.000 | .38023E+00 | .36321E+00 | 4.69 | .85415 | .89418 | 1.05274 | .170E-01 |
| 11 | 0.000 | 180.000 | .59453E+00 | .56693E+00 | 4.87 | .81603 | .85575 | .94128 | .241E-01 |
| 11 | 0.000 | 190.000 | .88417E+00 | .85416E+00 | 3.51 | .78209 | .80957 | .82564 | .339E-01 |
| 11 | 0.000 | 200.000 | .12960E+01 | .12586E+01 | 2.97 | .73203 | .75380 | .77901 | .480E-01 |
| 11 | 0.000 | 205.000 | .15805E+01 | .15222E+01 | 3.83 | .69469 | .72131 | .78610 | .579E-01 |
| 11 | 0.000 | 210.000 | .18762E+01 | .18426E+01 | 1.82 | .67258 | .68484 | .75139 | .710E-01 |
| 11 | 0.000 | 215.000 | .22578E+01 | .22406E+01 | .77 | .63841 | .64331 | .74377 | .894E-01 |
| 11 | 0.000 | 220.000 | .27450E+01 | .27526E+01 | -.28 | .59656 | .59491 | .74742 | .118E+00 |
| 11 | 0.000 | 225.000 | .34388E+01 | .34536E+01 | -.43 | .53853 | .53622 | .77316 | .168E+00 |
| 11 | 0.000 | 230.000 | .45065E+01 | .45566E+01 | -1.10 | .46306 | .45797 | .81608 | .299E+00 |

NP = 23, RMSPCT = .14

Table 3. Densities of Saturated Vapor.

Table 4. Second Virial Coefficients.

NF3 SECOND VIRIAL COEFFICIENTS, EV = 3.00

(40)NBS/RDG APRIL, 1979.

.49382731 -1.30972686 -.38983811

| ID | WT | T,K | X | B(T) | B* | CALC | DIF | PCT |
|---|---|---|---|---|---|---|---|---|
| 40 | 1.000 | 200.00 | .855 | -210.00 | -1.663 | -1.663 | -.000 | -.02 |
| 40 | 1.000 | 220.00 | .940 | -173.00 | -1.370 | -1.368 | -.002 | -.13 |
| 40 | 1.000 | 240.00 | 1.026 | -144.00 | -1.140 | -1.144 | .004 | .35 |
| 40 | 1.000 | 260.00 | 1.111 | -122.00 | -.966 | -.969 | .003 | .30 |
| 40 | 1.000 | 280.00 | 1.197 | -105.00 | -.832 | -.828 | -.003 | -.40 |
| 40 | 1.000 | 300.00 | 1.282 | -91.00 | -.721 | -.713 | -.008 | -1.12 |
| 40 | 1.000 | 320.00 | 1.368 | -77.00 | -.610 | -.616 | .007 | 1.06 |

NP = 7, RMSPCT = .63

Table 5. Comparisons With P-ρ-T Data for $NF_3$.

NF3 PVT DATA VS. EQNSTATE.
(1)NBS VIRIAL, (100+)NBS(1979), (26)BURNS(1975), (27)VANDERWALL(1977).

| ID | PN | WT | T,K | MOL/L | CALCD | D,PCT | P,BAR | CALCD | P,PCT |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | .839 | 160.000 | .2000 | .2001 | -.07 | 2.483 | 2.482 | .06 |
| 1 | 2 | .690 | 170.000 | .2000 | .2003 | -.16 | 2.661 | 2.657 | .15 |
| 1 | 3 | .610 | 180.000 | .2000 | .2005 | -.23 | 2.837 | 2.831 | .21 |
| 1 | 4 | .567 | 190.000 | .2000 | .2005 | -.27 | 3.012 | 3.004 | .26 |
| 1 | 5 | .544 | 200.000 | .2000 | .2006 | -.29 | 3.186 | 3.177 | .28 |
| 1 | 6 | .534 | 210.000 | .2000 | .2006 | -.30 | 3.359 | 3.350 | .29 |
| 1 | 7 | .532 | 220.000 | .2000 | .2006 | -.30 | 3.532 | 3.522 | .29 |
| 1 | 8 | .535 | 230.000 | .2000 | .2006 | -.30 | 3.704 | 3.693 | .29 |
| 1 | 9 | .543 | 240.000 | .2000 | .2006 | -.28 | 3.876 | 3.865 | .28 |
| 1 | 10 | .554 | 250.000 | .2000 | .2005 | -.27 | 4.047 | 4.036 | .26 |
| 1 | 11 | .568 | 260.000 | .2000 | .2005 | -.25 | 4.218 | 4.207 | .25 |
| 1 | 12 | .584 | 270.000 | .2000 | .2005 | -.23 | 4.388 | 4.378 | .23 |
| 1 | 13 | .601 | 280.000 | .2000 | .2004 | -.21 | 4.559 | 4.549 | .21 |
| 1 | 14 | .620 | 290.000 | .2000 | .2004 | -.19 | 4.729 | 4.720 | .19 |
| 1 | 15 | .640 | 300.000 | .2000 | .2003 | -.17 | 4.899 | 4.891 | .17 |
| 1 | 16 | .661 | 310.000 | .2000 | .2003 | -.16 | 5.069 | 5.061 | .15 |
| 1 | 17 | .683 | 320.000 | .2000 | .2003 | -.14 | 5.238 | 5.231 | .13 |

NP = 17, DNRMSPCT = .228, PMEANDIF = .008, PMEANPCT = .210

Table 5. Continued.

NF3 PVT DATA VS. EQNSTATE.
(1)NBS VIRIAL, (100+)NBS(1979), (26)BURNS(1975), (27)VANDERWALL(1977).

| ID | PN | WT | T,K | MOL/L | CALCD | D,PCT | P,BAR | CALCD | P,PCT |
|---|---|---|---|---|---|---|---|---|---|
| 601 | 18 | .745 | 200.000 | .5500 | .5508 | -.14 | 8.119 | 8.109 | .13 |
| 602 | 19 | .717 | 220.000 | .5491 | .5499 | -.16 | 9.117 | 9.104 | .14 |
| 603 | 20 | .755 | 240.000 | .5480 | .5487 | -.13 | 10.094 | 10.082 | .12 |
| 604 | 21 | .793 | 260.000 | .5470 | .5475 | -.09 | 11.059 | 11.049 | .09 |
| 605 | 22 | .846 | 280.000 | .5460 | .5463 | -.05 | 12.012 | 12.006 | .05 |
| 606 | 23 | .920 | 300.000 | .5449 | .5450 | -.01 | 12.955 | 12.954 | .01 |
| 607 | 24 | .959 | 320.000 | .5438 | .5437 | .02 | 13.891 | 13.894 | -.02 |
| 101 | 25 | .689 | 200.000 | 1.0965 | 1.0948 | .15 | 14.276 | 14.292 | -.11 |
| 102 | 26 | .681 | 220.000 | 1.0944 | 1.0931 | .12 | 16.476 | 16.492 | -.09 |
| 103 | 27 | .655 | 240.000 | 1.0922 | 1.0907 | .14 | 18.595 | 18.617 | -.12 |
| 104 | 28 | .610 | 260.000 | 1.0901 | 1.0880 | .19 | 20.660 | 20.695 | -.17 |
| 105 | 29 | .569 | 280.000 | 1.0879 | 1.0852 | .25 | 22.686 | 22.737 | -.23 |
| 106 | 30 | .540 | 300.000 | 1.0856 | 1.0824 | .30 | 24.682 | 24.751 | -.28 |
| 107 | 31 | .532 | 320.000 | 1.0833 | 1.0797 | .33 | 26.657 | 26.739 | -.31 |
| 501 | 32 | .791 | 220.000 | 1.4742 | 1.4737 | .03 | 20.712 | 20.718 | -.02 |
| 502 | 33 | .727 | 240.000 | 1.4712 | 1.4703 | .06 | 23.733 | 23.745 | -.05 |
| 503 | 34 | .662 | 260.000 | 1.4682 | 1.4663 | .13 | 26.654 | 26.682 | -.11 |
| 504 | 35 | .625 | 280.000 | 1.4651 | 1.4625 | .18 | 29.511 | 29.557 | -.16 |
| 505 | 36 | .593 | 300.000 | 1.4620 | 1.4585 | .24 | 32.314 | 32.382 | -.21 |
| 506 | 37 | .578 | 320.000 | 1.4587 | 1.4547 | .27 | 35.077 | 35.165 | -.25 |
| 201 | 38 | .786 | 220.000 | 1.9429 | 1.9422 | .04 | 24.944 | 24.950 | -.02 |
| 202 | 39 | .663 | 240.000 | 1.9388 | 1.9371 | .09 | 29.187 | 29.205 | -.06 |
| 203 | 40 | .588 | 260.000 | 1.9346 | 1.9314 | .17 | 33.252 | 33.295 | -.13 |
| 204 | 41 | .548 | 280.000 | 1.9303 | 1.9257 | .24 | 37.205 | 37.277 | -.19 |
| 205 | 42 | .522 | 300.000 | 1.9260 | 1.9202 | .30 | 41.071 | 41.176 | -.26 |
| 206 | 43 | .513 | 320.000 | 1.9215 | 1.9150 | .34 | 44.873 | 45.008 | -.30 |
| 301 | 44 | .779 | 220.000 | 2.5761 | 2.5798 | -.14 | 29.113 | 29.093 | .07 |
| 302 | 45 | .928 | 240.000 | 2.5702 | 2.5746 | -.17 | 35.239 | 35.202 | .10 |
| 303 | 46 | .810 | 260.000 | 2.5643 | 2.5653 | -.04 | 41.007 | 40.995 | .03 |
| 304 | 47 | .701 | 280.000 | 2.5582 | 2.5566 | .06 | 46.579 | 46.601 | -.05 |
| 305 | 48 | .656 | 300.000 | 2.5521 | 2.5486 | .14 | 52.014 | 52.072 | -.11 |
| 306 | 49 | .646 | 320.000 | 2.5457 | 2.5411 | .18 | 57.345 | 57.434 | -.15 |
| 901 | 50 | .538 | 225.000 | 3.0616 | 3.0744 | -.42 | 33.244 | 33.189 | .17 |
| 902 | 51 | .610 | 230.000 | 3.0598 | 3.0717 | -.39 | 35.186 | 35.125 | .18 |
| 903 | 52 | .752 | 240.000 | 3.0561 | 3.0654 | -.30 | 38.937 | 38.874 | .16 |
| 904 | 53 | .989 | 260.000 | 3.0488 | 3.0538 | -.17 | 46.127 | 46.077 | .11 |
| 905 | 54 | .814 | 280.000 | 3.0413 | 3.0423 | -.03 | 53.039 | 53.026 | .02 |
| 906 | 55 | .747 | 300.000 | 3.0336 | 3.0321 | .05 | 59.770 | 59.794 | -.04 |
| 907 | 56 | .732 | 320.000 | 3.0258 | 3.0226 | .10 | 66.361 | 66.418 | -.09 |
| 701 | 57 | .315 | 230.000 | 3.6818 | 3.7207 | -1.04 | 37.918 | 37.787 | .35 |
| 702 | 58 | .407 | 240.000 | 3.6772 | 3.7072 | -.81 | 42.715 | 42.562 | .36 |
| 703 | 59 | .526 | 260.000 | 3.6680 | 3.6881 | -.55 | 51.843 | 51.676 | .32 |
| 704 | 60 | .622 | 280.000 | 3.6585 | 3.6721 | -.37 | 60.600 | 60.444 | .26 |
| 705 | 61 | .662 | 300.000 | 3.6487 | 3.6589 | -.28 | 69.120 | 68.975 | .21 |
| 706 | 62 | .672 | 320.000 | 3.6388 | 3.6467 | -.22 | 77.453 | 77.317 | .18 |
| 1602 | 63 | .241 | 235.000 | 4.7629 | 4.8418 | -1.63 | 43.763 | 43.599 | .37 |
| 1603 | 64 | .259 | 240.000 | 4.7597 | 4.8329 | -1.51 | 47.112 | 46.895 | .46 |
| 1604 | 65 | .355 | 260.000 | 4.7468 | 4.7929 | -.96 | 59.867 | 59.570 | .50 |

Table 5. Continued.

NF3 PVT DATA VS. EQNSTATE.
(1)NBS VIRIAL, (100+)NBS(1979), (26)BURNS(1975), (27)VANDERWALL(1977).

| ID | PN | WT | T,K | MOL/L | CALCD | D,PCT | P,BAR | CALCD | P,PCT |
|---|---|---|---|---|---|---|---|---|---|
| 1605 | 66 | .411 | 280.000 | 4.7336 | 4.7673 | -.71 | 72.099 | 71.768 | .46 |
| 1606 | 67 | .438 | 300.000 | 4.7200 | 4.7472 | -.57 | 84.003 | 83.645 | .43 |
| 1607 | 68 | .438 | 320.000 | 4.7062 | 4.7303 | -.51 | 95.665 | 95.267 | .42 |
| 1701 | 69 | .174 | 235.000 | 5.7980 | 5.9458 | -2.49 | 45.213 | 45.093 | .27 |
| 1702 | 70 | .214 | 240.000 | 5.7940 | 5.9102 | -1.97 | 49.522 | 49.320 | .41 |
| 1703 | 71 | .285 | 250.000 | 5.7858 | 5.8636 | -1.33 | 57.839 | 57.561 | .48 |
| 1704 | 72 | .332 | 260.000 | 5.7774 | 5.8374 | -1.03 | 65.955 | 65.631 | .49 |
| 1705 | 73 | .377 | 280.000 | 5.7603 | 5.8048 | -.77 | 81.823 | 81.418 | .50 |
| 1706 | 74 | .385 | 300.000 | 5.7427 | 5.7812 | -.67 | 97.339 | 96.845 | .51 |
| 1707 | 75 | .376 | 320.000 | 5.7249 | 5.7611 | -.63 | 112.575 | 111.976 | .53 |
| 1006 | 76 | .183 | 235.000 | 5.8266 | 5.9673 | -2.36 | 45.229 | 45.118 | .25 |
| 1007 | 77 | .189 | 236.000 | 5.8258 | 5.9627 | -2.30 | 46.111 | 45.978 | .29 |
| 1008 | 78 | .198 | 237.000 | 5.8250 | 5.9545 | -2.18 | 46.982 | 46.832 | .32 |
| 1009 | 79 | .206 | 238.000 | 5.8242 | 5.9480 | -2.08 | 47.849 | 47.682 | .35 |
| 1010 | 80 | .223 | 240.000 | 5.8225 | 5.9343 | -1.88 | 49.562 | 49.371 | .39 |
| 1801 | 81 | .095 | 235.000 | 6.7709 | 7.1222 | -4.93 | 45.705 | 45.617 | .19 |
| 1802 | 82 | .224 | 240.000 | 6.7660 | 6.8920 | -1.83 | 50.886 | 50.734 | .30 |
| 1803 | 83 | .362 | 250.000 | 6.7561 | 6.8189 | -.92 | 60.986 | 60.787 | .33 |
| 1804 | 84 | .429 | 260.000 | 6.7459 | 6.7913 | -.67 | 70.930 | 70.696 | .33 |
| 1805 | 85 | .448 | 280.000 | 6.7248 | 6.7615 | -.54 | 90.535 | 90.196 | .38 |
| 1806 | 86 | .424 | 300.000 | 6.7032 | 6.7391 | -.53 | 109.823 | 109.342 | .44 |
| 1807 | 87 | .396 | 320.000 | 6.6816 | 6.7185 | -.55 | 128.827 | 128.179 | .51 |
| 1106 | 88 | .093 | 235.000 | 7.0723 | 7.4403 | -4.95 | 45.767 | 45.694 | .16 |
| 1107 | 89 | .145 | 236.000 | 7.0713 | 7.2935 | -3.05 | 46.867 | 46.781 | .18 |
| 1108 | 90 | .189 | 237.000 | 7.0702 | 7.2334 | -2.26 | 47.957 | 47.863 | .20 |
| 1109 | 91 | .227 | 238.000 | 7.0692 | 7.1989 | -1.80 | 49.042 | 48.942 | .20 |
| 1110 | 92 | .289 | 240.000 | 7.0672 | 7.1614 | -1.32 | 51.200 | 51.092 | .21 |
| 1901 | 93 | .228 | 235.000 | 7.8341 | 7.9658 | -1.65 | 45.860 | 45.837 | .05 |
| 1902 | 94 | .468 | 240.000 | 7.8284 | 7.7900 | .49 | 51.924 | 51.969 | -.09 |
| 1903 | 95 | .450 | 250.000 | 7.8165 | 7.7787 | .49 | 64.054 | 64.180 | -.20 |
| 1904 | 96 | .518 | 260.000 | 7.8041 | 7.7772 | .35 | 76.170 | 76.320 | -.20 |
| 1905 | 97 | .792 | 280.000 | 7.7783 | 7.7718 | .08 | 100.313 | 100.380 | -.07 |
| 1906 | 98 | .807 | 300.000 | 7.7521 | 7.7589 | -.09 | 124.237 | 124.135 | .08 |
| 1907 | 99 | .618 | 320.000 | 7.7265 | 7.7424 | -.21 | 147.908 | 147.591 | .21 |
| 1206 | 100 | .333 | 235.000 | 8.1094 | 8.0267 | 1.03 | 45.871 | 45.886 | -.03 |
| 1207 | 101 | .255 | 236.000 | 8.1082 | 7.9928 | 1.44 | 47.124 | 47.168 | -.09 |
| 1208 | 102 | .234 | 237.000 | 8.1070 | 7.9810 | 1.58 | 48.377 | 48.450 | -.15 |
| 1209 | 103 | .230 | 238.000 | 8.1058 | 7.9784 | 1.60 | 49.633 | 49.732 | -.20 |
| 1210 | 104 | .240 | 240.000 | 8.1034 | 7.9861 | 1.47 | 52.156 | 52.298 | -.27 |
| 812 | 105 | .405 | 235.000 | 8.1178 | 8.0553 | .78 | 45.877 | 45.888 | -.02 |
| 813 | 106 | .247 | 240.000 | 8.1119 | 7.9984 | 1.42 | 52.171 | 52.308 | -.26 |
| 814 | 107 | .300 | 250.000 | 8.0995 | 8.0208 | .98 | 64.869 | 65.139 | -.41 |
| 815 | 108 | .371 | 260.000 | 8.0865 | 8.0328 | .67 | 77.616 | 77.926 | -.40 |
| 2001 | 109 | .116 | 235.000 | 8.8533 | 8.5174 | 3.94 | 45.964 | 46.036 | -.16 |
| 2002 | 110 | .135 | 240.000 | 8.8467 | 8.5847 | 3.05 | 52.900 | 53.250 | -.66 |
| 2003 | 111 | .185 | 250.000 | 8.8328 | 8.6693 | 1.89 | 67.181 | 67.802 | -.92 |
| 2004 | 112 | .235 | 260.000 | 8.8181 | 8.7049 | 1.30 | 81.664 | 82.387 | -.88 |
| 2005 | 113 | .348 | 280.000 | 8.7874 | 8.7271 | .69 | 110.761 | 111.471 | -.64 |

Table 5. Continued.

NF3 PVT DATA VS. EQNSTATE.
(1)NBS VIRIAL, (100+)NBS(1979), (26)BURNS(1975), (27)VANDERWALL(1977).

| ID | PN | WT | T,K | MOL/L | CALCD | D,PCT | P,BAR | CALCD | P,PCT |
|---|---|---|---|---|---|---|---|---|---|
| 2006 | 114 | .492 | 300.000 | 8.7566 | 8.7250 | .36 | 139.781 | 140.328 | -.39 |
| 2007 | 115 | .659 | 320.000 | 8.7274 | 8.7123 | .17 | 168.575 | 168.922 | -.21 |
| 1306 | 116 | .075 | 235.000 | 9.1988 | 8.6529 | 6.31 | 45.991 | 46.131 | -.30 |
| 1307 | 117 | .085 | 236.000 | 9.1974 | 8.7270 | 5.39 | 47.415 | 47.642 | -.48 |
| 1308 | 118 | .094 | 237.000 | 9.1961 | 8.7763 | 4.78 | 48.861 | 49.162 | -.61 |
| 1309 | 119 | .101 | 238.000 | 9.1947 | 8.8138 | 4.32 | 50.322 | 50.687 | -.72 |
| 1310 | 120 | .115 | 240.000 | 9.1919 | 8.8683 | 3.65 | 53.280 | 53.748 | -.87 |
| 2101 | 121 | .093 | 235.000 | 9.8670 | 9.4001 | 4.97 | 46.201 | 46.433 | -.50 |
| 2102 | 122 | .113 | 240.000 | 9.8594 | 9.5120 | 3.65 | 54.265 | 54.911 | -1.18 |
| 2103 | 123 | .154 | 250.000 | 9.8431 | 9.6230 | 2.29 | 71.122 | 72.176 | -1.46 |
| 2104 | 124 | .185 | 260.000 | 9.8257 | 9.6618 | 1.70 | 88.303 | 89.590 | -1.44 |
| 2105 | 125 | .254 | 280.000 | 9.7896 | 9.6893 | 1.04 | 123.064 | 124.487 | -1.14 |
| 2106 | 126 | .320 | 300.000 | 9.7545 | 9.6867 | .70 | 157.853 | 159.254 | -.88 |
| 2107 | 127 | .378 | 320.000 | 9.7225 | 9.6734 | .51 | 192.477 | 193.815 | -.69 |
| 1406 | 128 | .102 | 235.000 | 10.1860 | 9.7594 | 4.37 | 46.369 | 46.677 | -.66 |
| 1407 | 129 | .107 | 236.000 | 10.1845 | 9.7836 | 4.10 | 48.040 | 48.445 | -.84 |
| 1408 | 130 | .109 | 237.000 | 10.1829 | 9.7948 | 3.96 | 49.721 | 50.225 | -1.00 |
| 1409 | 131 | .113 | 238.000 | 10.1813 | 9.8158 | 3.72 | 51.431 | 52.013 | -1.12 |
| 1410 | 132 | .122 | 240.000 | 10.1781 | 9.8517 | 3.31 | 54.895 | 55.611 | -1.29 |
| 2201 | 133 | .169 | 235.000 | 10.8444 | 10.6010 | 2.30 | 47.155 | 47.551 | -.83 |
| 2202 | 134 | .178 | 240.000 | 10.8355 | 10.6192 | 2.04 | 56.817 | 57.540 | -1.26 |
| 2203 | 135 | .221 | 250.000 | 10.8162 | 10.6657 | 1.41 | 76.900 | 77.940 | -1.33 |
| 2204 | 136 | .276 | 260.000 | 10.7956 | 10.6884 | 1.00 | 97.443 | 98.578 | -1.15 |
| 2205 | 137 | .392 | 280.000 | 10.7536 | 10.6942 | .55 | 138.974 | 140.049 | -.77 |
| 2206 | 138 | .507 | 300.000 | 10.7147 | 10.6801 | .32 | 180.597 | 181.489 | -.49 |
| 2207 | 139 | .600 | 320.000 | 10.6808 | 10.6598 | .20 | 222.095 | 222.798 | -.32 |
| 2302 | 140 | .342 | 235.000 | 11.9859 | 11.8964 | .75 | 50.886 | 51.342 | -.89 |
| 2303 | 141 | .360 | 240.000 | 11.9749 | 11.8913 | .70 | 62.985 | 63.600 | -.97 |
| 2304 | 142 | .441 | 250.000 | 11.9512 | 11.8898 | .52 | 87.811 | 88.542 | -.83 |
| 2305 | 143 | .538 | 260.000 | 11.9263 | 11.8829 | .37 | 113.040 | 113.755 | -.63 |
| 2306 | 144 | .702 | 280.000 | 11.8777 | 11.8556 | .19 | 163.880 | 164.450 | -.35 |
| 2307 | 145 | .772 | 300.000 | 11.8362 | 11.8235 | .11 | 214.798 | 215.240 | -.21 |
| 2308 | 146 | .742 | 320.000 | 11.8013 | 11.7915 | .08 | 265.560 | 265.998 | -.16 |
| 2502 | 147 | .861 | 230.000 | 13.2274 | 13.2148 | .10 | 46.808 | 46.937 | -.27 |
| 2503 | 148 | .917 | 235.000 | 13.2141 | 13.2039 | .08 | 62.040 | 62.176 | -.22 |
| 2504 | 149 | .758 | 240.000 | 13.2000 | 13.1949 | .04 | 77.517 | 77.600 | -.11 |
| 2505 | 150 | .653 | 250.000 | 13.1701 | 13.1721 | -.01 | 108.794 | 108.752 | .04 |
| 2506 | 151 | .625 | 260.000 | 13.1402 | 13.1466 | -.05 | 140.289 | 140.109 | .13 |
| 2507 | 152 | .686 | 280.000 | 13.0874 | 13.0953 | -.06 | 203.455 | 203.144 | .15 |
| 2508 | 153 | .886 | 300.000 | 13.0455 | 13.0487 | -.02 | 266.595 | 266.433 | .06 |
| 2401 | 154 | .510 | 225.000 | 14.2667 | 14.2796 | -.09 | 44.567 | 44.336 | .52 |
| 2402 | 155 | .424 | 230.000 | 14.2510 | 14.2709 | -.14 | 63.201 | 62.767 | .69 |
| 2403 | 156 | .408 | 240.000 | 14.2166 | 14.2412 | -.17 | 100.744 | 100.030 | .71 |
| 2404 | 157 | .417 | 250.000 | 14.1813 | 14.2081 | -.19 | 138.506 | 137.541 | .70 |
| 2405 | 158 | .450 | 260.000 | 14.1490 | 14.1746 | -.18 | 176.323 | 175.220 | .63 |
| 2406 | 159 | .503 | 270.000 | 14.1209 | 14.1434 | -.16 | 214.187 | 213.061 | .53 |
| 2407 | 160 | .590 | 280.000 | 14.0968 | 14.1141 | -.12 | 252.025 | 251.038 | .39 |
| 2408 | 161 | .720 | 290.000 | 14.0755 | 14.0868 | -.08 | 289.818 | 289.095 | .25 |

Table 5. Continued.

NF3 PVT DATA VS. EQNSTATE.
(1)NBS VIRIAL, (100+)NBS(1979), (26)BURNS(1975), (27)VANDERWALL(1977).

| ID | PN | WT | T,K | MOL/L | CALCD | D,PCT | P,BAR | CALCD | P,PCT |
|---|---|---|---|---|---|---|---|---|---|
| 2602 | 162 | .488 | 220.000 | 15.2155 | 15.2259 | -.07 | 45.983 | 45.683 | .66 |
| 2603 | 163 | .405 | 225.000 | 15.1969 | 15.2152 | -.12 | 68.294 | 67.680 | .91 |
| 2604 | 164 | .402 | 230.000 | 15.1770 | 15.1981 | -.14 | 90.556 | 89.757 | .89 |
| 2605 | 165 | .412 | 240.000 | 15.1362 | 15.1606 | -.16 | 135.155 | 134.019 | .85 |
| 2606 | 166 | .454 | 250.000 | 15.0989 | 15.1223 | -.15 | 179.742 | 178.462 | .72 |
| 2607 | 167 | .530 | 260.000 | 15.0677 | 15.0869 | -.13 | 224.367 | 223.158 | .54 |
| 2608 | 168 | .664 | 270.000 | 15.0415 | 15.0541 | -.08 | 268.965 | 268.074 | .33 |
| 2609 | 169 | .914 | 280.000 | 15.0187 | 15.0230 | -.03 | 313.449 | 313.116 | .11 |
| 2701 | 170 | .856 | 210.000 | 16.2335 | 16.2337 | -.00 | 31.606 | 31.599 | .02 |
| 2702 | 171 | .469 | 215.000 | 16.2127 | 16.2222 | -.06 | 58.512 | 58.060 | .78 |
| 2703 | 172 | .500 | 215.000 | 16.2127 | 16.2209 | -.05 | 58.448 | 58.062 | .66 |
| 2704 | 173 | .443 | 220.000 | 16.1898 | 16.2035 | -.08 | 85.232 | 84.510 | .85 |
| 2705 | 174 | .438 | 225.000 | 16.1658 | 16.1825 | -.10 | 111.886 | 110.924 | .87 |
| 2706 | 175 | .453 | 230.000 | 16.1421 | 16.1600 | -.11 | 138.448 | 137.330 | .81 |
| 2707 | 176 | .514 | 240.000 | 16.1000 | 16.1168 | -.10 | 191.559 | 190.338 | .64 |
| 2708 | 177 | .640 | 250.000 | 16.0663 | 16.0781 | -.07 | 244.729 | 243.756 | .40 |
| 2709 | 178 | .916 | 260.000 | 16.0387 | 16.0422 | -.02 | 297.816 | 297.496 | .11 |
| 2801 | 179 | .130 | 200.000 | 17.4218 | 17.3894 | .19 | 31.480 | 33.640 | -6.42 |
| 2802 | 180 | .670 | 205.000 | 17.3954 | 17.3901 | .03 | 66.075 | 66.459 | -.58 |
| 2803 | 181 | .953 | 210.000 | 17.3670 | 17.3662 | .00 | 99.016 | 99.081 | -.06 |
| 2804 | 182 | .824 | 215.000 | 17.3383 | 17.3399 | -.01 | 131.690 | 131.554 | .10 |
| 2805 | 183 | .831 | 220.000 | 17.3115 | 17.3136 | -.01 | 164.255 | 164.056 | .12 |
| 2806 | 184 | .883 | 225.000 | 17.2878 | 17.2896 | -.01 | 196.897 | 196.720 | .09 |
| 2807 | 185 | .973 | 230.000 | 17.2674 | 17.2671 | .00 | 229.561 | 229.587 | -.01 |
| 2808 | 186 | .801 | 235.000 | 17.2496 | 17.2459 | .02 | 262.222 | 262.634 | -.16 |
| 2809 | 187 | .664 | 240.000 | 17.2338 | 17.2255 | .05 | 294.843 | 295.812 | -.33 |
| 2901 | 188 | .453 | 190.000 | 18.5460 | 18.5400 | .03 | 49.777 | 50.391 | -1.22 |
| 2902 | 189 | .733 | 194.000 | 18.5200 | 18.5171 | .02 | 82.053 | 82.376 | -.39 |
| 2903 | 190 | .962 | 200.000 | 18.4788 | 18.4790 | -.00 | 129.824 | 129.807 | .01 |
| 2904 | 191 | .907 | 205.000 | 18.4471 | 18.4484 | -.01 | 169.481 | 169.320 | .10 |
| 2905 | 192 | .992 | 210.000 | 18.4200 | 18.4207 | -.00 | 209.251 | 209.169 | .04 |
| 2906 | 193 | .834 | 215.000 | 18.3975 | 18.3956 | .01 | 249.137 | 249.407 | -.11 |
| 2907 | 194 | .681 | 220.000 | 18.3784 | 18.3724 | .03 | 289.058 | 289.938 | -.30 |
| 3001 | 195 | .118 | 176.000 | 19.4280 | 19.4168 | .06 | 17.750 | 19.171 | -7.41 |
| 3002 | 196 | .339 | 180.000 | 19.4013 | 19.3933 | .04 | 55.751 | 56.830 | -1.90 |
| 3003 | 197 | .567 | 184.000 | 19.3709 | 19.3661 | .02 | 93.066 | 93.743 | -.72 |
| 3004 | 198 | .720 | 188.000 | 19.3395 | 19.3364 | .02 | 129.796 | 130.245 | -.34 |
| 3005 | 199 | .603 | 192.000 | 19.3107 | 19.3046 | .03 | 165.910 | 166.845 | -.56 |
| 3006 | 200 | .627 | 196.000 | 19.2854 | 19.2794 | .03 | 202.775 | 203.742 | -.47 |
| 3007 | 201 | .596 | 200.000 | 19.2642 | 19.2567 | .04 | 239.813 | 241.067 | -.52 |
| 3008 | 202 | .603 | 205.000 | 19.2418 | 19.2341 | .04 | 286.807 | 288.164 | -.47 |
| 3101 | 203 | .113 | 160.000 | 20.6409 | 20.6327 | .04 | 17.679 | 19.162 | -7.74 |
| 3102 | 204 | .375 | 164.000 | 20.6080 | 20.6025 | .03 | 64.347 | 65.395 | -1.60 |
| 3103 | 205 | .543 | 168.000 | 20.5707 | 20.5665 | .02 | 109.477 | 110.323 | -.77 |
| 3104 | 206 | .646 | 172.000 | 20.5342 | 20.5307 | .02 | 154.178 | 154.894 | -.46 |
| 3105 | 207 | .691 | 176.000 | 20.5028 | 20.4995 | .02 | 199.376 | 200.065 | -.34 |
| 3106 | 208 | .637 | 180.000 | 20.4773 | 20.4725 | .02 | 245.058 | 246.126 | -.43 |
| 3107 | 209 | .556 | 184.000 | 20.4564 | 20.4486 | .04 | 291.075 | 292.877 | -.62 |
| 3201 | 210 | .222 | 144.000 | 21.7506 | 21.7477 | .01 | 20.326 | 21.059 | -3.48 |
| 3202 | 211 | .524 | 148.000 | 21.7109 | 21.7083 | .01 | 75.762 | 76.421 | -.86 |

Table 5. Continued.

NF3 PVT DATA VS. EQNSTATE.
(1)NBS VIRIAL, (100+)NBS(1979), (26)BURNS(1975), (27)VANDERWALL(1977).

| ID | PN | WT | T,K | MOL/L | CALCD | D,PCT | P,BAR | CALCD | P,PCT |
|---|---|---|---|---|---|---|---|---|---|
| 3203 | 212 | .772 | 152.000 | 21.6664 | 21.6652 | .01 | 129.502 | 129.818 | -.24 |
| 3204 | 213 | .777 | 156.000 | 21.6295 | 21.6280 | .01 | 184.095 | 184.495 | -.22 |
| 3205 | 214 | .796 | 160.000 | 21.5942 | 21.5928 | .01 | 238.550 | 238.958 | -.17 |
| 3206 | 215 | .637 | 164.000 | 21.5692 | 21.5648 | .02 | 294.473 | 295.777 | -.44 |
| 3301 | 216 | .282 | 124.000 | 23.0104 | 23.0115 | -.00 | 15.792 | 15.402 | 2.53 |
| 3302 | 217 | .646 | 128.000 | 22.9620 | 22.9633 | -.01 | 83.605 | 83.156 | .54 |
| 3303 | 218 | .659 | 130.000 | 22.9351 | 22.9368 | -.01 | 116.223 | 115.629 | .51 |
| 3304 | 219 | .654 | 132.000 | 22.9090 | 22.9112 | -.01 | 148.828 | 148.048 | .53 |
| 3305 | 220 | .640 | 134.000 | 22.8853 | 22.8881 | -.01 | 182.078 | 181.060 | .56 |
| 3306 | 221 | .688 | 136.000 | 22.8649 | 22.8675 | -.01 | 215.960 | 214.971 | .46 |
| 3307 | 222 | .798 | 138.000 | 22.8474 | 22.8492 | -.01 | 250.446 | 249.765 | .27 |
| 3308 | 223 | .997 | 140.000 | 22.8323 | 22.8326 | -.00 | 285.347 | 285.241 | .04 |
| 3401 | 224 | .439 | 108.000 | 24.0635 | 24.0620 | .01 | 52.250 | 52.943 | -1.31 |
| 3402 | 225 | .554 | 110.000 | 24.0333 | 24.0316 | .01 | 91.280 | 92.041 | -.83 |
| 3403 | 226 | .782 | 112.000 | 24.0018 | 24.0010 | .00 | 129.716 | 130.110 | -.30 |
| 3404 | 227 | .946 | 114.000 | 23.9724 | 23.9725 | -.00 | 168.714 | 168.663 | .03 |
| 3405 | 228 | .822 | 116.000 | 23.9470 | 23.9478 | -.00 | 209.069 | 208.673 | .19 |
| 3406 | 229 | .895 | 118.000 | 23.9259 | 23.9264 | -.00 | 250.608 | 250.359 | .10 |
| 3407 | 230 | .882 | 120.000 | 23.9081 | 23.9073 | .00 | 292.951 | 293.350 | -.14 |
| 3501 | 231 | .174 | 90.000 | 25.0381 | 25.0362 | .01 | 21.866 | 22.976 | -4.83 |
| 3502 | 232 | .418 | 92.000 | 25.0055 | 25.0038 | .01 | 68.766 | 69.788 | -1.47 |
| 3503 | 233 | .930 | 94.000 | 24.9696 | 24.9693 | .00 | 113.787 | 113.964 | -.16 |
| 3504 | 234 | .566 | 96.000 | 24.9344 | 24.9361 | -.01 | 158.957 | 157.891 | .68 |
| 3505 | 235 | .502 | 98.000 | 24.9040 | 24.9070 | -.01 | 205.933 | 204.107 | .89 |
| 3506 | 236 | .515 | 100.000 | 24.8793 | 24.8827 | -.01 | 255.263 | 253.125 | .84 |
| 3507 | 237 | .600 | 102.000 | 24.8589 | 24.8617 | -.01 | 306.123 | 304.360 | .58 |

NP = 220, DNRMSPCT = .721, PMEANDIF = .405, PMEANPCT = .372

Table 5. Continued.

NF3 PVT DATA VS. EQNSTATE.
(1)NBS VIRIAL, (100+)NBS(1979), (26)BURNS(1975), (27)VANDERWALL(1977).

| ID | PN | WT | T,K | MOL/L | CALCD | D,PCT | P,BAR | CALCD | P,PCT |
|---|---|---|---|---|---|---|---|---|---|
| 26 | 238 | 1.000 | 273.150 | 1.0663 | 1.0567 | .90 | 21.464 | 21.637 | -.80 |
| 26 | 239 | 1.000 | 282.150 | 1.0663 | 1.0470 | 1.84 | 22.180 | 22.548 | -1.63 |
| 26 | 240 | 1.000 | 299.150 | 1.0663 | 1.0407 | 2.46 | 23.725 | 24.260 | -2.21 |
| 26 | 241 | 1.000 | 319.350 | 1.0663 | 1.0414 | 2.39 | 25.710 | 26.282 | -2.18 |
| 27 | 242 | 1.000 | 273.150 | 1.6887 | 1.6983 | -.56 | 32.336 | 32.185 | .47 |
| 27 | 243 | 1.000 | 294.250 | 1.6887 | 1.6735 | .91 | 35.508 | 35.788 | -.78 |
| 27 | 244 | 1.000 | 321.150 | 1.6887 | 1.6861 | .16 | 40.265 | 40.322 | -.14 |
| 27 | 245 | 1.000 | 344.150 | 1.6887 | 1.6730 | .94 | 43.782 | 44.160 | -.86 |
| 26 | 246 | 1.000 | 273.150 | 2.3661 | 2.4174 | -2.12 | 42.810 | 42.117 | 1.64 |
| 26 | 247 | 1.000 | 282.650 | 2.3661 | 2.3609 | .22 | 44.471 | 44.549 | -.18 |
| 26 | 248 | 1.000 | 300.250 | 2.3661 | 2.3505 | .67 | 48.739 | 49.007 | -.55 |
| 26 | 249 | 1.000 | 319.350 | 2.3661 | 2.3381 | 1.20 | 53.241 | 53.789 | -1.02 |
| 27 | 250 | 1.000 | 273.150 | 2.9651 | 2.9802 | -.51 | 49.918 | 49.738 | .36 |
| 27 | 251 | 1.000 | 295.150 | 2.9651 | 2.9540 | .37 | 56.951 | 57.117 | -.29 |
| 27 | 252 | 1.000 | 324.650 | 2.9651 | 2.9825 | -.58 | 67.155 | 66.825 | .49 |
| 27 | 253 | 1.000 | 344.250 | 2.9651 | 2.9412 | .81 | 72.671 | 73.188 | -.71 |
| 26 | 254 | 1.000 | 273.150 | 3.3225 | 3.4557 | -3.86 | 55.296 | 53.841 | 2.70 |
| 26 | 255 | 1.000 | 284.150 | 3.3225 | 3.3846 | -1.84 | 58.895 | 58.111 | 1.35 |
| 26 | 256 | 1.000 | 298.950 | 3.3225 | 3.3660 | -1.29 | 64.432 | 63.790 | 1.01 |
| 26 | 257 | 1.000 | 319.150 | 3.3225 | 3.3291 | -.20 | 71.561 | 71.444 | .16 |
| 27 | 258 | 1.000 | 273.150 | 3.7558 | 3.7997 | -1.16 | 58.881 | 58.436 | .76 |
| 27 | 259 | 1.000 | 292.850 | 3.7558 | 3.7433 | .33 | 67.155 | 67.319 | -.24 |
| 27 | 260 | 1.000 | 324.250 | 3.7558 | 3.7414 | .38 | 80.944 | 81.200 | -.31 |
| 27 | 261 | 1.000 | 273.150 | 4.3876 | 4.5272 | -3.08 | 65.776 | 64.516 | 1.95 |
| 27 | 262 | 1.000 | 292.150 | 4.3876 | 4.4829 | -2.13 | 76.118 | 74.961 | 1.54 |
| 27 | 263 | 1.000 | 323.950 | 4.3876 | 4.4595 | -1.61 | 93.355 | 92.116 | 1.35 |
| 27 | 264 | 1.000 | 344.150 | 4.3876 | 4.4287 | -.93 | 103.697 | 102.858 | .82 |
| 27 | 265 | 1.000 | 273.150 | 4.4712 | 4.5272 | -1.24 | 65.776 | 65.273 | .77 |
| 27 | 266 | 1.000 | 295.150 | 4.4712 | 4.4098 | 1.39 | 76.877 | 77.650 | -1.00 |
| 27 | 267 | 1.000 | 323.550 | 4.4712 | 4.4361 | .79 | 92.734 | 93.336 | -.64 |
| 27 | 268 | 1.000 | 344.150 | 4.4712 | 4.4051 | 1.50 | 103.215 | 104.565 | -1.29 |
| 27 | 269 | 1.000 | 273.150 | 6.3442 | 6.3954 | -.80 | 80.944 | 80.548 | .49 |
| 27 | 270 | 1.000 | 291.550 | 6.3442 | 6.2783 | 1.05 | 96.320 | 97.068 | -.77 |
| 27 | 271 | 1.000 | 318.650 | 6.3442 | 6.2899 | .86 | 120.245 | 121.155 | -.75 |
| 27 | 272 | 1.000 | 344.250 | 6.3442 | 6.2833 | .97 | 142.377 | 143.709 | -.93 |
| 27 | 273 | 1.000 | 326.150 | 6.5508 | 6.3920 | 2.48 | 128.656 | 131.590 | -2.23 |
| 27 | 274 | 1.000 | 344.250 | 6.5508 | 6.4277 | 1.91 | 145.548 | 148.283 | -1.84 |
| 27 | 275 | 1.000 | 273.150 | 8.8026 | 8.8078 | -.06 | 101.629 | 101.576 | .05 |
| 27 | 276 | 1.000 | 292.450 | 8.8026 | 8.6875 | 1.33 | 128.242 | 129.993 | -1.35 |
| 27 | 277 | 1.000 | 310.150 | 8.8026 | 8.7168 | .98 | 154.374 | 156.112 | -1.11 |
| 27 | 278 | 1.000 | 316.650 | 8.8026 | 8.6951 | 1.24 | 163.337 | 165.710 | -1.43 |
| 27 | 279 | 1.000 | 344.250 | 8.8026 | 8.6630 | 1.61 | 202.292 | 206.473 | -2.02 |
| 27 | 280 | 1.000 | 273.150 | 11.6398 | 11.5100 | 1.13 | 138.929 | 141.562 | -1.86 |
| 27 | 281 | 1.000 | 283.450 | 11.6398 | 11.4328 | 1.81 | 162.027 | 167.130 | -3.05 |
| 27 | 282 | 1.000 | 288.150 | 11.6398 | 11.4069 | 2.04 | 172.645 | 178.855 | -3.47 |
| 27 | 283 | 1.000 | 293.150 | 11.6398 | 11.3728 | 2.35 | 183.676 | 191.364 | -4.02 |

NP = 46, DNRMSPCT = 1.515, PMEANDIF = 1.254, PMEANPCT = 1.208

NP = 237, DNRMSPCT = .693, PMEANDIF = .372, PMEANPCT = .358

Table 6. Coefficients of the Equation of State.

EQUATION OF STATE, COEFFICIENTS

DGAT = .336118520E-06, TBLP = 144.0935
DGBP = .878210055E-01, DLBP = 21.6617
DTRP = 26.3200, TTRP = 66.350, PTRP = .185425421E-05
DCRT = 7.9200, TCRT = 234.000, PCRT = 44.607130324
DPS/DTB = .70882E-01, QVAPB,KJ/MOL = 11.583

IX = 1, ER = 0.000
AL = 1.0000000, BE = 0.0000000, GA = 1.0000000
DE = .5000000, EP = 1.0000000

B1 = .55199813920, B2 = .13268809584, B3 = .20608495802
C1 = .74067409894, C2 = .29375371520, C3 = 0.00000000000

| MOL/L | TSAT | THETA | PSAT | B | C |
|---|---|---|---|---|---|
| 1.0 | 194.018 | 183.967 | 12.719 | .5720 | -.59895 |
| 2.0 | 212.116 | 205.168 | 23.561 | .5986 | -.47316 |
| 3.0 | 221.972 | 217.769 | 31.741 | .6318 | -.36236 |
| 4.0 | 227.832 | 225.639 | 37.549 | .6716 | -.26555 |
| 5.0 | 231.310 | 230.387 | 41.392 | .7179 | -.18161 |
| 6.0 | 233.188 | 232.923 | 43.610 | .7708 | -.10947 |
| 7.0 | 233.913 | 233.884 | 44.499 | .8303 | -.04801 |
| 8.0 | 234.000 | 234.000 | 44.607 | .8963 | .00382 |
| 9.0 | 233.930 | 233.882 | 44.520 | .9689 | .04703 |
| 10.0 | 233.503 | 233.166 | 43.994 | 1.0481 | .08259 |
| 11.0 | 232.416 | 231.328 | 42.685 | 1.1338 | .11139 |
| 12.0 | 230.408 | 227.910 | 40.364 | 1.2261 | .13425 |
| 13.0 | 227.273 | 222.540 | 36.961 | 1.3250 | .15193 |
| 14.0 | 222.861 | 214.963 | 32.572 | 1.4305 | .16513 |
| 15.0 | 217.076 | 205.054 | 27.447 | 1.5425 | .17447 |
| 16.0 | 209.872 | 192.832 | 21.943 | 1.6611 | .18052 |
| 17.0 | 201.249 | 178.461 | 16.476 | 1.7863 | .18377 |
| 18.0 | 191.243 | 162.249 | 11.458 | 1.9181 | .18467 |
| 19.0 | 179.919 | 144.626 | 7.236 | 2.0564 | .18362 |
| 20.0 | 167.370 | 126.120 | 4.030 | 2.2013 | .18098 |
| 21.0 | 153.700 | 107.316 | 1.894 | 2.3527 | .17704 |
| 22.0 | 139.023 | 88.815 | .700 | 2.5107 | .17207 |
| 23.0 | 123.448 | 71.189 | .182 | 2.6753 | .16630 |
| 24.0 | 107.074 | 54.932 | .027 | 2.8465 | .15993 |
| 25.0 | 89.971 | 40.432 | .002 | 3.0242 | .15313 |
| 26.0 | 72.183 | 27.952 | .000 | 3.2086 | .14605 |

TABLE 7. Calculated P(ρ) Critical Isotherm

The following page gives a high-resolution examination of the critical isotherm as computed by equation of state (6). Column headings have the following interpretations--

D/DC ≡ $d/d_c$, density reduced at the critical point.
TS/TC ≡ $T_\sigma(\rho)/T_c$, reduced coexistence temperature.
PS/PC ≡ $P_\sigma(\rho)/P_c$, reduced coexistence pressure.
P/PC ≡ $P/P_c$, pressure reduced at the critical point.
DP/DR ≡ $\partial P/\partial\rho$ slope of the critical isotherm, bar.*

The last five columns give the density-dependence of functions used in the equation of state, where R ≡ ρ ≡ $d/d_t$ is density reduced at the liquid triple point--

DTS/DR ≡ $dT_\sigma(\rho)/d\rho$, K.
DTH/DR ≡ $d\ (\rho)/d\rho$, K.
DPS/DR ≡ $dP_\sigma(\rho)/d\rho$, bar.
DXB/DR ≡ $\partial\ (\rho,T)/\partial\rho$.
DXC/DR ≡ $\partial\ (\rho,T)/\partial\rho$.

*Note: ρ ≡ $d/d_t$, density reduced at the liquid triple-point.

THE CRITICAL ISOTHERM

TC = 234.00, DC = 7.920, PC = 44.6071303. AT THE C.P., DPS/DT = 1.24509, DP/DT = 1.24509

| D/DC | TS/TC | PS/PC | P/PC | DP/DR | DTS/DR | DTH/DR | DPS/DR | DXB/DR | DXC/DR |
|---|---|---|---|---|---|---|---|---|---|
| .900 | .9997667132 | .9984785814 | .9998490785 | .943707009 | 5.66917 | 7.52859 | 7.03928 | -.02423 | .08340 |
| .905 | .9998012754 | .9987037439 | .9998784552 | .800830384 | 5.08677 | 6.76504 | 6.31829 | -.02174 | .07570 |
| .910 | .9998321940 | .9989052348 | .9999032732 | .673257843 | 4.53586 | 6.04223 | 5.63577 | -.01939 | .06831 |
| .915 | .9998597536 | .9990848900 | .9999240792 | .559926933 | 4.01530 | 5.35903 | 4.99041 | -.01716 | .06121 |
| .920 | .9998839821 | .9992428740 | .9999412479 | .460543216 | 3.52884 | 4.71921 | 4.38696 | -.01508 | .05447 |
| .925 | .9999051883 | .9993811851 | .9999552830 | .373928664 | 3.07490 | 4.12117 | 3.82353 | -.01314 | .04808 |
| .930 | .9999235818 | .9995011778 | .9999666003 | .299193502 | 2.65363 | 3.56508 | 3.30038 | -.01134 | .04205 |
| .935 | .9999393728 | .9996042129 | .9999755850 | .235431847 | 2.26506 | 3.05099 | 2.81765 | -.00968 | .03639 |
| .940 | .9999527712 | .9996916527 | .9999825918 | .181727100 | 1.90914 | 2.57883 | 2.37529 | -.00816 | .03111 |
| .945 | .9999639864 | .9997648555 | .9999879443 | .137157694 | 1.58566 | 2.14840 | 1.97312 | -.00678 | .02623 |
| .950 | .9999732259 | .9998251711 | .9999919349 | .100803156 | 1.29432 | 1.75941 | 1.61079 | -.00553 | .02175 |
| .955 | .9999806950 | .9998739350 | .9999948252 | .071750358 | 1.03470 | 1.41142 | 1.28783 | -.00442 | .01767 |
| .960 | .9999865957 | .9999124632 | .9999968463 | .049099891 | .80624 | 1.10390 | 1.00357 | -.00345 | .01402 |
| .965 | .9999911263 | .9999420478 | .9999981991 | .031972463 | .60828 | .83618 | .75722 | -.00260 | .01077 |
| .970 | .9999944804 | .9999639513 | .9999990553 | .019515241 | .44006 | .60750 | .54784 | -.00188 | .00795 |
| .975 | .9999969234 | .9999799059 | .9999995696 | .010700560 | .29568 | .41196 | .35812 | -.00126 | .00547 |
| .980 | .9999984427 | .9999898291 | .9999998296 | .005274811 | .18629 | .26071 | .23193 | -.00080 | .00353 |
| .985 | .9999993508 | .9999957598 | .9999999482 | .002128765 | .10308 | .14494 | .12834 | -.00044 | .00201 |
| .990 | .9999998504 | .9999990229 | .9999999924 | .000497074 | .03835 | .05695 | .04775 | -.00016 | .00078 |
| .995 | .9999999813 | .9999998782 | .9999999995 | .000058050 | .00949 | .01414 | .01181 | -.00004 | .00020 |
| 1.000 | 1.0000000000 | 1.0000000000 | 1.0000000000 | .000000000 | .00000 | .00000 | .00000 | -.00000 | 0.00000 |
| 1.005 | .9999999921 | .9999999485 | 1.0000000002 | .000026765 | -.00455 | -.00920 | -.00566 | .00002 | -.00010 |
| 1.010 | .9999999369 | .9999995880 | 1.0000000032 | .000226990 | -.01820 | -.03680 | -.02266 | .00008 | -.00037 |
| 1.015 | .9999996359 | .9999976221 | 1.0000000288 | .001195902 | -.05855 | -.10042 | -.07290 | .00025 | -.00115 |
| 1.020 | .9999991371 | .9999943638 | 1.0000000937 | .002923213 | -.10409 | -.17851 | -.12960 | .00044 | -.00199 |
| 1.025 | .9999981419 | .9999878644 | 1.0000002588 | .006313000 | -.17356 | -.28983 | -.21608 | .00074 | -.00324 |
| 1.030 | .9999967895 | .9999790315 | 1.0000005478 | .011154524 | -.24989 | -.41733 | -.31111 | .00107 | -.00456 |
| 1.035 | .9999949022 | .9999667062 | 1.0000010339 | .018068233 | -.34008 | -.56799 | -.42338 | .00145 | -.00609 |
| 1.040 | .9999923912 | .9999503078 | 1.0000017936 | .027462131 | -.44412 | -.74179 | -.55288 | .00190 | -.00781 |
| 1.045 | .9999891675 | .9999292563 | 1.0000029176 | .039758404 | -.56199 | -.93873 | -.69957 | .00240 | -.00972 |
| 1.050 | .9999851423 | .9999029727 | 1.0000045110 | .055393104 | -.69368 | -1.15878 | -.86345 | .00296 | -.01181 |
| 1.055 | .9999802269 | .9998708786 | 1.0000066940 | .074815968 | -.83918 | -1.40194 | -1.04447 | .00359 | -.01408 |
| 1.060 | .9999743327 | .9998323967 | 1.0000096018 | .098490316 | -.99845 | -1.66817 | -1.24260 | .00427 | -.01651 |
| 1.065 | .9999672674 | .9997862727 | 1.0000134295 | .127207062 | -1.17398 | -1.95995 | -1.46090 | .00502 | -.01916 |
| 1.070 | .9999591246 | .9997331206 | 1.0000182730 | .160911702 | -1.36116 | -2.27268 | -1.69364 | .00582 | -.02192 |
| 1.075 | .9999497342 | .9996718311 | 1.0000243488 | .200353242 | -1.56208 | -2.60845 | -1.94342 | .00668 | -.02485 |
| 1.080 | .9999390077 | .9996018303 | 1.0000318588 | .246050634 | -1.77673 | -2.96723 | -2.21018 | .00759 | -.02793 |
| 1.085 | .9999268570 | .9995225463 | 1.0000410232 | .298536625 | -2.00508 | -3.34900 | -2.49387 | .00857 | -.03115 |
| 1.090 | .9999131941 | .9994334087 | 1.0000520801 | .358357864 | -2.24710 | -3.75372 | -2.79444 | .00960 | -.03452 |
| 1.095 | .9998979312 | .9993338493 | 1.0000652862 | .426075027 | -2.50276 | -4.18136 | -3.11184 | .01070 | -.03802 |
| 1.100 | .9998809808 | .9992233015 | 1.0000809175 | .502262943 | -2.77203 | -4.63189 | -3.44599 | .01185 | -.04166 |

Table 7. Calculated P(ρ) Critical Isotherm.

Table 8. Comparisons With Ideal Gas Functions.

NF3 IDEAL GAS FUNCTIONS, JOULES,MOLES,KELVINS

| T,K | HZ-HZZ | CALCD | PCNT | SZ | CALCD | PCNT | CPZ | CALCD | PCNT |
|---|---|---|---|---|---|---|---|---|---|
| 100.00 | 3334.6 | 3336.7 | -.06 | 215.689 | 215.683 | .00 | 34.04 | 34.04 | -.00 |
| 200.00 | 7117.0 | 7119.9 | -.04 | 241.559 | 241.556 | .00 | 42.78 | 42.78 | .00 |
| 298.00 | 11849.1 | 11842.6 | .05 | 260.659 | 260.632 | .01 | 53.37 | 53.36 | .01 |
| 300.00 | 11949.5 | 11949.5 | .00 | 260.990 | 260.990 | 0.00 | 53.55 | 53.56 | -.02 |
| 400.00 | 17744.3 | 17744.6 | -.00 | 277.604 | 277.604 | .00 | 61.86 | 61.86 | .00 |
| 500.00 | 24233.7 | 24234.3 | -.00 | 292.060 | 292.061 | -.00 | 67.57 | 67.56 | .01 |
| 600.00 | 31195.9 | 31196.3 | -.00 | 304.746 | 304.744 | .00 | 71.43 | 71.43 | .00 |
| 700.00 | 38480.2 | 38480.3 | -.00 | 315.967 | 315.967 | .00 | 74.09 | 74.09 | -.00 |
| 800.00 | 45986.3 | 45988.7 | -.01 | 325.992 | 325.990 | .00 | 75.97 | 75.97 | -.01 |
| 900.00 | 53655.6 | 53657.8 | -.00 | 335.021 | 335.022 | -.00 | 77.34 | 77.34 | -.00 |
| 1000.00 | 61442.0 | 61445.1 | -.00 | 343.226 | 343.225 | .00 | 78.36 | 78.36 | .00 |
| 1100.00 | 69320.5 | 69321.3 | -.00 | 350.732 | 350.732 | .00 | 79.14 | 79.13 | .00 |
| 1200.00 | 77265.9 | 77266.2 | -.00 | 357.644 | 357.644 | .00 | 79.74 | 79.74 | .00 |
| 1300.00 | 85265.7 | 85265.0 | .00 | 364.046 | 364.046 | -.00 | 80.22 | 80.22 | .00 |
| 1400.00 | 93307.4 | 93307.3 | .00 | 370.008 | 370.006 | .00 | 80.61 | 80.61 | -.00 |
| 1500.00 | 101382.5 | 101384.8 | -.00 | 375.581 | 375.579 | .00 | 80.93 | 80.93 | -.00 |

Table 9. Interpolated Ideal Gas Functions.

NF3 IDEAL GAS FUNCTIONS, JOULES, MOLES, KELVINS

| T,K | EZ-EZZ | HZ-HZZ | SZ | CVZ | CPZ |
|---|---|---|---|---|---|
| 50.0 | 1247.6 | 1663.3 | 192.512 | 24.95 | 33.26 |
| 60.0 | 1497.1 | 1996.0 | 198.576 | 24.96 | 33.27 |
| 70.0 | 1746.9 | 2328.9 | 203.708 | 25.01 | 33.32 |
| 80.0 | 1997.5 | 2662.7 | 208.165 | 25.14 | 33.45 |
| 90.0 | 2249.9 | 2998.2 | 212.117 | 25.37 | 33.68 |
| 100.0 | 2505.3 | 3336.7 | 215.683 | 25.72 | 34.04 |
| 110.0 | 2764.8 | 3679.4 | 218.948 | 26.21 | 34.52 |
| 120.0 | 3029.8 | 4027.6 | 221.977 | 26.81 | 35.13 |
| 130.0 | 3301.4 | 4382.3 | 224.816 | 27.53 | 35.84 |
| 140.0 | 3580.7 | 4744.7 | 227.502 | 28.34 | 36.65 |
| 150.0 | 3868.5 | 5115.7 | 230.060 | 29.23 | 37.55 |
| 160.0 | 4165.6 | 5495.9 | 232.514 | 30.19 | 38.51 |
| 170.0 | 4472.5 | 5886.0 | 234.879 | 31.21 | 39.52 |
| 180.0 | 4789.9 | 6286.5 | 237.167 | 32.26 | 40.58 |
| 190.0 | 5117.9 | 6697.7 | 239.390 | 33.35 | 41.67 |
| 200.0 | 5457.0 | 7119.9 | 241.556 | 34.46 | 42.78 |
| 210.0 | 5807.2 | 7553.2 | 243.670 | 35.58 | 43.90 |
| 220.0 | 6168.6 | 7997.8 | 245.738 | 36.71 | 45.02 |
| 230.0 | 6541.4 | 8453.7 | 247.764 | 37.83 | 46.15 |
| 240.0 | 6925.3 | 8920.7 | 249.752 | 38.95 | 47.26 |
| 250.0 | 7320.3 | 9398.9 | 251.703 | 40.05 | 48.36 |
| 260.0 | 7726.2 | 9888.0 | 253.621 | 41.13 | 49.45 |
| 270.0 | 8142.9 | 10387.8 | 255.508 | 42.20 | 50.51 |
| 280.0 | 8570.1 | 10898.2 | 257.364 | 43.24 | 51.56 |
| 290.0 | 9007.6 | 11418.8 | 259.191 | 44.26 | 52.57 |
| 300.0 | 9455.2 | 11949.5 | 260.990 | 45.25 | 53.56 |
| 310.0 | 9912.4 | 12489.9 | 262.762 | 46.21 | 54.52 |
| 320.0 | 10379.2 | 13039.8 | 264.507 | 47.14 | 55.45 |
| 330.0 | 10855.1 | 13598.9 | 266.228 | 48.04 | 56.36 |
| 340.0 | 11339.9 | 14166.9 | 267.923 | 48.91 | 57.23 |
| 350.0 | 11833.3 | 14743.4 | 269.594 | 49.76 | 58.07 |
| 360.0 | 12335.0 | 15328.2 | 271.242 | 50.57 | 58.89 |
| 370.0 | 12844.6 | 15921.0 | 272.866 | 51.36 | 59.67 |
| 380.0 | 13362.0 | 16521.5 | 274.467 | 52.11 | 60.43 |
| 390.0 | 13886.8 | 17129.5 | 276.046 | 52.84 | 61.16 |
| 400.0 | 14418.8 | 17744.6 | 277.604 | 53.54 | 61.86 |
| 410.0 | 14957.6 | 18366.6 | 279.139 | 54.22 | 62.54 |
| 420.0 | 15503.1 | 18995.2 | 280.654 | 54.87 | 63.19 |
| 430.0 | 16055.0 | 19630.2 | 282.148 | 55.50 | 63.81 |
| 440.0 | 16613.0 | 20271.3 | 283.622 | 56.10 | 64.41 |
| 450.0 | 17176.8 | 20918.4 | 285.076 | 56.68 | 64.99 |
| 460.0 | 17746.4 | 21571.1 | 286.511 | 57.23 | 65.55 |
| 470.0 | 18321.4 | 22229.2 | 287.926 | 57.77 | 66.08 |
| 480.0 | 18901.6 | 22892.6 | 289.323 | 58.28 | 66.59 |
| 490.0 | 19486.9 | 23561.0 | 290.701 | 58.77 | 67.09 |
| 500.0 | 20077.1 | 24234.3 | 292.061 | 59.25 | 67.56 |
| 510.0 | 20671.9 | 24912.3 | 293.404 | 59.71 | 68.02 |
| 520.0 | 21271.1 | 25594.7 | 294.729 | 60.15 | 68.46 |
| 530.0 | 21874.7 | 26281.4 | 296.037 | 60.57 | 68.88 |
| 540.0 | 22482.4 | 26972.3 | 297.328 | 60.98 | 69.29 |
| 550.0 | 23094.2 | 27667.1 | 298.603 | 61.37 | 69.68 |
| 560.0 | 23709.7 | 28365.8 | 299.862 | 61.74 | 70.06 |
| 570.0 | 24329.0 | 29068.2 | 301.106 | 62.11 | 70.42 |
| 580.0 | 24951.8 | 29774.2 | 302.333 | 62.45 | 70.77 |
| 590.0 | 25578.0 | 30483.6 | 303.546 | 62.79 | 71.11 |
| 600.0 | 26207.6 | 31196.3 | 304.744 | 63.11 | 71.43 |

Table 10. The Heats of Vaporization.

NF3 QVAP, NF = 3, E = .380, QT = 14.548

(23)AEROJET, (39)THERMALOOPS, (40)CLAPEYRON.

.998247122E+00 .269536103E+00 -.405010672E+00
0. 0. 0.

| ID | WT | T,K | KJ/MOL | CALC | PCNT | RESID. |
|---|---|---|---|---|---|---|
| 39 | 1.000 | 66.360 | 14.548 | 14.548 | .00 | .1613E+01 |
| 39 | .989 | 70.000 | 14.406 | 14.402 | .03 | .8935E+00 |
| 39 | .974 | 75.000 | 14.213 | 14.207 | .04 | .9022E+00 |
| 39 | .958 | 80.000 | 14.021 | 14.017 | .03 | .9100E+00 |
| 39 | .943 | 85.000 | 13.832 | 13.830 | .02 | .9200E+00 |
| 39 | .927 | 90.000 | 13.645 | 13.646 | -.01 | .9302E+00 |
| 39 | .911 | 95.000 | 13.461 | 13.464 | -.02 | .9415E+00 |
| 39 | .894 | 100.000 | 13.278 | 13.283 | -.03 | .9523E+00 |
| 39 | .877 | 105.000 | 13.096 | 13.102 | -.04 | .9630E+00 |
| 39 | .860 | 110.000 | 12.914 | 12.920 | -.04 | .9735E+00 |
| 39 | .843 | 115.000 | 12.731 | 12.736 | -.04 | .9835E+00 |
| 39 | .825 | 120.000 | 12.546 | 12.549 | -.03 | .9930E+00 |
| 39 | .806 | 125.000 | 12.358 | 12.359 | -.01 | .1002E+01 |
| 39 | .788 | 130.000 | 12.165 | 12.164 | .01 | .1010E+01 |
| 39 | .768 | 135.000 | 11.967 | 11.963 | .04 | .1018E+01 |
| 39 | .749 | 140.000 | 11.761 | 11.754 | .06 | .1024E+01 |
| 40 | 1.000 | 66.350 | 14.548 | 14.548 | .00 | 0. |
| 40 | .989 | 70.000 | 14.407 | 14.402 | .03 | .9000E+00 |
| 40 | .974 | 75.000 | 14.214 | 14.207 | .05 | .9051E+00 |
| 40 | .958 | 80.000 | 14.022 | 14.017 | .04 | .9120E+00 |
| 40 | .943 | 85.000 | 13.832 | 13.830 | .02 | .9205E+00 |
| 40 | .927 | 90.000 | 13.645 | 13.646 | -.01 | .9303E+00 |
| 40 | .911 | 95.000 | 13.460 | 13.464 | -.03 | .9409E+00 |
| 40 | .894 | 100.000 | 13.278 | 13.283 | -.04 | .9522E+00 |
| 40 | .877 | 105.000 | 13.097 | 13.102 | -.03 | .9636E+00 |
| 40 | .860 | 110.000 | 12.917 | 12.920 | -.02 | .9748E+00 |
| 40 | .843 | 115.000 | 12.736 | 12.736 | -.00 | .9854E+00 |
| 40 | .825 | 120.000 | 12.552 | 12.549 | .02 | .9952E+00 |
| 40 | .806 | 125.000 | 12.364 | 12.359 | .04 | .1004E+01 |
| 40 | .788 | 130.000 | 12.171 | 12.164 | .06 | .1012E+01 |
| 40 | .768 | 135.000 | 11.970 | 11.963 | .06 | .1018E+01 |
| 40 | .749 | 140.000 | 11.761 | 11.754 | .06 | .1024E+01 |
| 40 | .729 | 145.000 | 11.543 | 11.538 | .04 | .1029E+01 |
| 40 | .708 | 150.000 | 11.314 | 11.311 | .02 | .1032E+01 |
| 40 | .686 | 155.000 | 11.073 | 11.074 | -.01 | .1035E+01 |
| 40 | .664 | 160.000 | 10.821 | 10.824 | -.04 | .1037E+01 |
| 40 | .642 | 165.000 | 10.554 | 10.561 | -.06 | .1039E+01 |
| 40 | .618 | 170.000 | 10.273 | 10.281 | -.08 | .1040E+01 |
| 40 | .593 | 175.000 | 9.975 | 9.983 | -.08 | .1041E+01 |
| 40 | .563 | 180.000 | 9.657 | 9.664 | -.07 | .1042E+01 |
| 40 | .541 | 185.000 | 9.318 | 9.322 | -.05 | .1041E+01 |
| 40 | .512 | 190.000 | 8.952 | 8.953 | -.01 | .1041E+01 |
| 40 | .482 | 195.000 | 8.556 | 8.553 | .04 | .1040E+01 |
| 40 | .450 | 200.000 | 8.122 | 8.115 | .09 | .1038E+01 |
| 40 | .416 | 205.000 | 7.640 | 7.631 | .13 | .1035E+01 |
| 40 | .378 | 210.000 | 7.099 | 7.089 | .13 | .1030E+01 |
| 40 | .337 | 215.000 | 6.476 | 6.471 | .08 | .1025E+01 |
| 40 | .289 | 220.000 | 5.739 | 5.743 | -.07 | .1017E+01 |
| 40 | .232 | 225.000 | 4.818 | 4.834 | -.33 | .1008E+01 |
| 40 | .154 | 230.000 | 3.521 | 3.532 | -.32 | .1001E+01 |
| 40 | 0.000 | 234.000 | 0.000 | 0.000 | 0.00 | 0. |

Table 10. Continued.

NF3 QVAP, NF = 3, E = .380, QT = 14.548

| ID | WT | T,K | KJ/MOL | CALC | PCNT | RESID. |
|---|---|---|---|---|---|---|
| 23 | 0.000 | 70.000 | 14.469 | 14.402 | .46 | .1216E+01 |
| 23 | 0.000 | 80.000 | 14.137 | 14.017 | .86 | .1070E+01 |
| 23 | 0.000 | 90.000 | 13.790 | 13.646 | 1.06 | .1048E+01 |
| 23 | 0.000 | 100.000 | 13.429 | 13.283 | 1.10 | .1039E+01 |
| 23 | 0.000 | 110.000 | 13.049 | 12.920 | 1.00 | .1035E+01 |
| 23 | 0.000 | 120.000 | 12.651 | 12.549 | .81 | .1032E+01 |
| 23 | 0.000 | 130.000 | 12.229 | 12.164 | .54 | .1031E+01 |
| 23 | 0.000 | 140.000 | 11.782 | 11.754 | .23 | .1030E+01 |
| 23 | 0.000 | 150.000 | 11.303 | 11.311 | -.08 | .1029E+01 |
| 23 | 0.000 | 160.000 | 10.787 | 10.824 | -.35 | .1029E+01 |
| 23 | 0.000 | 170.000 | 10.225 | 10.281 | -.54 | .1030E+01 |
| 23 | 0.000 | 180.000 | 9.605 | 9.664 | -.61 | .1031E+01 |
| 23 | 0.000 | 190.000 | 8.908 | 8.953 | -.51 | .1032E+01 |
| 23 | 0.000 | 200.000 | 8.102 | 8.115 | -.16 | .1034E+01 |
| 23 | 0.000 | 210.000 | 7.129 | 7.089 | .56 | .1037E+01 |
| 23 | 0.000 | 220.000 | 5.850 | 5.743 | 1.86 | .1042E+01 |
| 23 | 0.000 | 230.000 | 3.699 | 3.532 | 4.73 | .1057E+01 |

NP = 50, RMSPCT = .05

TABLE 11. Calculated P(T) Isochores

The following pages give P(T) along isochores, as computed by the equation of state. The third column DP/DD is the isotherm slope $(\partial P/\partial \rho)$ in units of the bar and mol/L. The last two columns give the isochore slopes and curvatures $\partial P/\partial T$, $\partial^2 P/\partial T^2$, in units of the bar and K.

These tables show that the isochore curvatures are qualitatively consistent with a maximum in the specific heat $C_v(\rho,T)$ at the critical point.

Table 11. Calculated P(T) Isochores.

NF3 ISOCHORE AT .500 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 177.084 | 6.388 | .86770 | 10.916 | .0473 | -.000113 |
| 180.000 | 6.525 | .87200 | 11.233 | .0470 | -.000092 |
| 188.000 | 6.898 | .88264 | 12.077 | .0464 | -.000060 |
| 196.000 | 7.268 | .89193 | 12.899 | .0460 | -.000044 |
| 204.000 | 7.634 | .90015 | 13.706 | .0456 | -.000034 |
| 212.000 | 7.998 | .90750 | 14.502 | .0454 | -.000028 |
| 220.000 | 8.360 | .91412 | 15.289 | .0452 | -.000023 |
| 228.000 | 8.721 | .92012 | 16.070 | .0450 | -.000019 |
| 236.000 | 9.081 | .92558 | 16.845 | .0449 | -.000017 |
| 244.000 | 9.440 | .93059 | 17.615 | .0448 | -.000014 |
| 252.000 | 9.797 | .93518 | 18.381 | .0447 | -.000013 |
| 260.000 | 10.154 | .93942 | 19.143 | .0446 | -.000011 |
| 268.000 | 10.510 | .94334 | 19.902 | .0445 | -.000010 |
| 276.000 | 10.866 | .94698 | 20.659 | .0444 | -.000009 |
| 284.000 | 11.220 | .95036 | 21.412 | .0443 | -.000008 |
| 292.000 | 11.575 | .95351 | 22.164 | .0443 | -.000008 |
| 300.000 | 11.929 | .95645 | 22.913 | .0442 | -.000007 |
| 308.000 | 12.282 | .95920 | 23.661 | .0441 | -.000007 |
| 316.000 | 12.635 | .96179 | 24.407 | .0441 | -.000006 |
| 324.000 | 12.987 | .96421 | 25.151 | .0440 | -.000006 |
| 332.000 | 13.340 | .96650 | 25.894 | .0440 | -.000005 |
| 340.000 | 13.691 | .96865 | 26.635 | .0440 | -.000005 |
| 348.000 | 14.043 | .97068 | 27.375 | .0439 | -.000005 |
| 356.000 | 14.394 | .97259 | 28.113 | .0439 | -.000004 |
| 364.000 | 14.745 | .97441 | 28.851 | .0438 | -.000004 |
| 372.000 | 15.096 | .97613 | 29.587 | .0438 | -.000004 |
| 380.000 | 15.446 | .97776 | 30.323 | .0438 | -.000004 |
| 388.000 | 15.796 | .97931 | 31.057 | .0438 | -.000004 |
| 396.000 | 16.146 | .98078 | 31.791 | .0437 | -.000003 |
| 404.000 | 16.496 | .98218 | 32.523 | .0437 | -.000003 |
| 412.000 | 16.845 | .98351 | 33.255 | .0437 | -.000003 |
| 420.000 | 17.195 | .98478 | 33.986 | .0436 | -.000003 |
| 428.000 | 17.544 | .98599 | 34.716 | .0436 | -.000003 |
| 436.000 | 17.893 | .98715 | 35.445 | .0436 | -.000003 |
| 444.000 | 18.241 | .98825 | 36.174 | .0436 | -.000003 |
| 452.000 | 18.590 | .98931 | 36.902 | .0436 | -.000003 |
| 460.000 | 18.938 | .99032 | 37.629 | .0435 | -.000003 |
| 468.000 | 19.286 | .99129 | 38.356 | .0435 | -.000002 |
| 476.000 | 19.634 | .99222 | 39.082 | .0435 | -.000002 |
| 484.000 | 19.982 | .99311 | 39.808 | .0435 | -.000002 |
| 492.000 | 20.330 | .99396 | 40.533 | .0435 | -.000002 |
| 500.000 | 20.678 | .99478 | 41.257 | .0434 | -.000002 |

Table 11. Calculated P(T) Isochores.

NF3 ISOCHORE AT .500 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 177.084 | 6.388 | .86770 | 10.916 | .0473 | -.000113 |
| 180.000 | 6.525 | .87200 | 11.233 | .0470 | -.000092 |
| 188.000 | 6.898 | .88264 | 12.077 | .0464 | -.000060 |
| 196.000 | 7.268 | .89193 | 12.899 | .0460 | -.000044 |
| 204.000 | 7.634 | .90015 | 13.706 | .0456 | -.000034 |
| 212.000 | 7.998 | .90750 | 14.502 | .0454 | -.000028 |
| 220.000 | 8.360 | .91412 | 15.289 | .0452 | -.000023 |
| 228.000 | 8.721 | .92012 | 16.070 | .0450 | -.000019 |
| 236.000 | 9.081 | .92558 | 16.845 | .0449 | -.000017 |
| 244.000 | 9.440 | .93059 | 17.615 | .0448 | -.000014 |
| 252.000 | 9.797 | .93518 | 18.381 | .0447 | -.000013 |
| 260.000 | 10.154 | .93942 | 19.143 | .0446 | -.000011 |
| 268.000 | 10.510 | .94334 | 19.902 | .0445 | -.000010 |
| 276.000 | 10.866 | .94698 | 20.659 | .0444 | -.000009 |
| 284.000 | 11.220 | .95036 | 21.412 | .0443 | -.000008 |
| 292.000 | 11.575 | .95351 | 22.164 | .0443 | -.000008 |
| 300.000 | 11.929 | .95645 | 22.913 | .0442 | -.000007 |
| 308.000 | 12.282 | .95920 | 23.661 | .0441 | -.000007 |
| 316.000 | 12.635 | .96179 | 24.407 | .0441 | -.000006 |
| 324.000 | 12.987 | .96421 | 25.151 | .0440 | -.000006 |
| 332.000 | 13.340 | .96650 | 25.894 | .0440 | -.000005 |
| 340.000 | 13.691 | .96865 | 26.635 | .0440 | -.000005 |
| 348.000 | 14.043 | .97068 | 27.375 | .0439 | -.000005 |
| 356.000 | 14.394 | .97259 | 28.113 | .0439 | -.000004 |
| 364.000 | 14.745 | .97441 | 28.851 | .0438 | -.000004 |
| 372.000 | 15.096 | .97613 | 29.587 | .0438 | -.000004 |
| 380.000 | 15.446 | .97776 | 30.323 | .0438 | -.000004 |
| 388.000 | 15.796 | .97931 | 31.057 | .0438 | -.000004 |
| 396.000 | 16.146 | .98078 | 31.791 | .0437 | -.000003 |
| 404.000 | 16.496 | .98218 | 32.523 | .0437 | -.000003 |
| 412.000 | 16.845 | .98351 | 33.255 | .0437 | -.000003 |
| 420.000 | 17.195 | .98478 | 33.986 | .0436 | -.000003 |
| 428.000 | 17.544 | .98599 | 34.716 | .0436 | -.000003 |
| 436.000 | 17.893 | .98715 | 35.445 | .0436 | -.000003 |
| 444.000 | 18.241 | .98825 | 36.174 | .0436 | -.000003 |
| 452.000 | 18.590 | .98931 | 36.902 | .0436 | -.000003 |
| 460.000 | 18.938 | .99032 | 37.629 | .0435 | -.000003 |
| 468.000 | 19.286 | .99129 | 38.356 | .0435 | -.000002 |
| 476.000 | 19.634 | .99222 | 39.082 | .0435 | -.000002 |
| 484.000 | 19.982 | .99311 | 39.808 | .0435 | -.000002 |
| 492.000 | 20.330 | .99396 | 40.533 | .0435 | -.000002 |
| 500.000 | 20.678 | .99478 | 41.257 | .0434 | -.000002 |

Table 11. Continued.

NF3 ISOCHORE AT 1.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 194.018 | 12.719 | .78847 | 9.474 | .1036 | -.000398 |
| 196.000 | 12.924 | .79305 | 9.731 | .1029 | -.000341 |
| 204.000 | 13.738 | .80992 | 10.723 | .1007 | -.000216 |
| 212.000 | 14.537 | .82472 | 11.673 | .0993 | -.000156 |
| 220.000 | 15.327 | .83789 | 12.595 | .0982 | -.000121 |
| 228.000 | 16.108 | .84972 | 13.498 | .0973 | -.000097 |
| 236.000 | 16.884 | .86044 | 14.386 | .0966 | -.000081 |
| 244.000 | 17.654 | .87019 | 15.262 | .0960 | -.000068 |
| 252.000 | 18.420 | .87911 | 16.128 | .0955 | -.000059 |
| 260.000 | 19.182 | .88731 | 16.986 | .0950 | -.000051 |
| 268.000 | 19.940 | .89487 | 17.837 | .0947 | -.000045 |
| 276.000 | 20.696 | .90187 | 18.681 | .0943 | -.000040 |
| 284.000 | 21.449 | .90837 | 19.520 | .0940 | -.000036 |
| 292.000 | 22.200 | .91441 | 20.354 | .0937 | -.000033 |
| 300.000 | 22.949 | .92004 | 21.184 | .0935 | -.000030 |
| 308.000 | 23.696 | .92531 | 22.009 | .0932 | -.000028 |
| 316.000 | 24.441 | .93024 | 22.832 | .0930 | -.000025 |
| 324.000 | 25.185 | .93487 | 23.650 | .0928 | -.000023 |
| 332.000 | 25.927 | .93923 | 24.466 | .0927 | -.000022 |
| 340.000 | 26.667 | .94332 | 25.279 | .0925 | -.000020 |
| 348.000 | 27.406 | .94719 | 26.090 | .0923 | -.000019 |
| 356.000 | 28.144 | .95084 | 26.898 | .0922 | -.000018 |
| 364.000 | 28.881 | .95429 | 27.704 | .0920 | -.000017 |
| 372.000 | 29.617 | .95755 | 28.508 | .0919 | -.000016 |
| 380.000 | 30.352 | .96065 | 29.309 | .0918 | -.000015 |
| 388.000 | 31.086 | .96359 | 30.109 | .0917 | -.000014 |
| 396.000 | 31.819 | .96638 | 30.907 | .0916 | -.000014 |
| 404.000 | 32.551 | .96904 | 31.703 | .0914 | -.000013 |
| 412.000 | 33.282 | .97157 | 32.498 | .0913 | -.000012 |
| 420.000 | 34.012 | .97398 | 33.291 | .0913 | -.000012 |
| 428.000 | 34.742 | .97628 | 34.083 | .0912 | -.000011 |
| 436.000 | 35.471 | .97847 | 34.874 | .0911 | -.000011 |
| 444.000 | 36.199 | .98057 | 35.663 | .0910 | -.000010 |
| 452.000 | 36.926 | .98257 | 36.450 | .0909 | -.000010 |
| 460.000 | 37.653 | .98449 | 37.237 | .0908 | -.000010 |
| 468.000 | 38.380 | .98632 | 38.022 | .0907 | -.000009 |
| 476.000 | 39.105 | .98808 | 38.807 | .0907 | -.000009 |
| 484.000 | 39.831 | .98977 | 39.590 | .0906 | -.000009 |
| 492.000 | 40.555 | .99139 | 40.372 | .0905 | -.000008 |
| 500.000 | 41.279 | .99294 | 41.153 | .0905 | -.000008 |

Table 11. Continued.

NF3 ISOCHORE AT 2.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 212.116 | 23.561 | .66796 | 6.446 | .2374 | -.001518 |
| 220.000 | 25.395 | .69416 | 7.668 | .2289 | -.000800 |
| 228.000 | 27.204 | .71751 | 8.820 | .2236 | -.000544 |
| 236.000 | 28.977 | .73837 | 9.923 | .2199 | -.000409 |
| 244.000 | 30.724 | .75721 | 10.996 | .2169 | -.000324 |
| 252.000 | 32.449 | .77435 | 12.045 | .2146 | -.000266 |
| 260.000 | 34.158 | .79005 | 13.075 | .2126 | -.000224 |
| 268.000 | 35.852 | .80448 | 14.091 | .2110 | -.000192 |
| 276.000 | 37.534 | .81781 | 15.095 | .2095 | -.000168 |
| 284.000 | 39.206 | .83016 | 16.088 | .2083 | -.000148 |
| 292.000 | 40.867 | .84164 | 17.072 | .2072 | -.000132 |
| 300.000 | 42.521 | .85234 | 18.049 | .2062 | -.000118 |
| 308.000 | 44.166 | .86233 | 19.018 | .2053 | -.000107 |
| 316.000 | 45.805 | .87169 | 19.981 | .2045 | -.000098 |
| 324.000 | 47.438 | .88047 | 20.938 | .2037 | -.000089 |
| 332.000 | 49.065 | .88872 | 21.890 | .2030 | -.000082 |
| 340.000 | 50.686 | .89649 | 22.837 | .2024 | -.000076 |
| 348.000 | 52.303 | .90382 | 23.780 | .2018 | -.000071 |
| 356.000 | 53.915 | .91074 | 24.718 | .2013 | -.000066 |
| 364.000 | 55.523 | .91729 | 25.654 | .2007 | -.000062 |
| 372.000 | 57.127 | .92349 | 26.585 | .2003 | -.000058 |
| 380.000 | 58.728 | .92938 | 27.513 | .1998 | -.000055 |
| 388.000 | 60.324 | .93496 | 28.439 | .1994 | -.000052 |
| 396.000 | 61.918 | .94027 | 29.361 | .1990 | -.000049 |
| 404.000 | 63.508 | .94532 | 30.281 | .1986 | -.000047 |
| 412.000 | 65.095 | .95013 | 31.198 | .1982 | -.000044 |
| 420.000 | 66.679 | .95472 | 32.112 | .1979 | -.000042 |
| 428.000 | 68.261 | .95910 | 33.025 | .1975 | -.000040 |
| 436.000 | 69.840 | .96328 | 33.935 | .1972 | -.000039 |
| 444.000 | 71.417 | .96728 | 34.842 | .1969 | -.000037 |
| 452.000 | 72.991 | .97110 | 35.748 | .1966 | -.000035 |
| 460.000 | 74.563 | .97477 | 36.652 | .1964 | -.000034 |
| 468.000 | 76.133 | .97828 | 37.554 | .1961 | -.000033 |
| 476.000 | 77.701 | .98164 | 38.455 | .1958 | -.000031 |
| 484.000 | 79.267 | .98487 | 39.353 | .1956 | -.000030 |
| 492.000 | 80.830 | .98797 | 40.250 | .1954 | -.000029 |
| 500.000 | 82.392 | .99095 | 41.145 | .1951 | -.000028 |

Table 11. Continued.

NF3 ISOCHORE AT 3.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 221.972 | 31.741 | .57328 | 3.991 | .3925 | -.003709 |
| 228.000 | 34.057 | .59884 | 5.055 | .3775 | -.001772 |
| 236.000 | 37.030 | .62904 | 6.345 | .3666 | -.001081 |
| 244.000 | 39.931 | .65610 | 7.576 | .3593 | -.000779 |
| 252.000 | 42.783 | .68063 | 8.771 | .3538 | -.000604 |
| 260.000 | 45.595 | .70305 | 9.942 | .3495 | -.000490 |
| 268.000 | 48.376 | .72367 | 11.095 | .3459 | -.000410 |
| 276.000 | 51.131 | .74270 | 12.232 | .3428 | -.000350 |
| 284.000 | 53.863 | .76035 | 13.358 | .3402 | -.000303 |
| 292.000 | 56.575 | .77676 | 14.473 | .3380 | -.000267 |
| 300.000 | 59.271 | .79207 | 15.579 | .3360 | -.000237 |
| 308.000 | 61.951 | .80638 | 16.677 | .3342 | -.000213 |
| 316.000 | 64.618 | .81980 | 17.768 | .3325 | -.000193 |
| 324.000 | 67.272 | .83240 | 18.854 | .3311 | -.000176 |
| 332.000 | 69.915 | .84426 | 19.933 | .3297 | -.000161 |
| 340.000 | 72.548 | .85544 | 21.008 | .3285 | -.000149 |
| 348.000 | 75.171 | .86599 | 22.078 | .3273 | -.000138 |
| 356.000 | 77.785 | .87597 | 23.143 | .3263 | -.000128 |
| 364.000 | 80.391 | .88542 | 24.205 | .3253 | -.000120 |
| 372.000 | 82.990 | .89439 | 25.263 | .3243 | -.000113 |
| 380.000 | 85.581 | .90289 | 26.317 | .3235 | -.000106 |
| 388.000 | 88.165 | .91098 | 27.368 | .3226 | -.000100 |
| 396.000 | 90.743 | .91868 | 28.416 | .3219 | -.000095 |
| 404.000 | 93.315 | .92601 | 29.461 | .3211 | -.000090 |
| 412.000 | 95.882 | .93300 | 30.503 | .3204 | -.000085 |
| 420.000 | 98.442 | .93967 | 31.543 | .3198 | -.000081 |
| 428.000 | 100.998 | .94605 | 32.580 | .3191 | -.000077 |
| 436.000 | 103.549 | .95214 | 33.615 | .3185 | -.000074 |
| 444.000 | 106.095 | .95797 | 34.647 | .3179 | -.000071 |
| 452.000 | 108.636 | .96356 | 35.677 | .3174 | -.000068 |
| 460.000 | 111.173 | .96891 | 36.705 | .3169 | -.000065 |
| 468.000 | 113.706 | .97404 | 37.731 | .3163 | -.000063 |
| 476.000 | 116.234 | .97897 | 38.755 | .3159 | -.000060 |
| 484.000 | 118.759 | .98371 | 39.777 | .3154 | -.000058 |
| 492.000 | 121.281 | .98825 | 40.797 | .3149 | -.000056 |
| 500.000 | 123.798 | .99263 | 41.815 | .3145 | -.000054 |

Table 11. Continued.

NF3 ISOCHORE AT 4.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 227.832 | 37.549 | .49555 | 2.234 | .5625 | -.007997 |
| 228.000 | 37.643 | .49643 | 2.269 | .5612 | -.007513 |
| 236.000 | 41.990 | .53499 | 3.730 | .5314 | -.002198 |
| 244.000 | 46.183 | .56911 | 5.073 | .5178 | -.001352 |
| 252.000 | 50.287 | .60001 | 6.376 | .5086 | -.000979 |
| 260.000 | 54.327 | .62827 | 7.657 | .5017 | -.000764 |
| 268.000 | 58.318 | .65429 | 8.922 | .4962 | -.000623 |
| 276.000 | 62.269 | .67837 | 10.175 | .4916 | -.000523 |
| 284.000 | 66.186 | .70073 | 11.419 | .4878 | -.000449 |
| 292.000 | 70.075 | .72158 | 12.656 | .4844 | -.000392 |
| 300.000 | 73.938 | .74105 | 13.885 | .4815 | -.000346 |
| 308.000 | 77.779 | .75930 | 15.109 | .4789 | -.000310 |
| 316.000 | 81.600 | .77644 | 16.328 | .4765 | -.000279 |
| 324.000 | 85.404 | .79257 | 17.542 | .4744 | -.000254 |
| 332.000 | 89.191 | .80777 | 18.752 | .4724 | -.000233 |
| 340.000 | 92.963 | .82212 | 19.959 | .4706 | -.000214 |
| 348.000 | 96.721 | .83569 | 21.161 | .4690 | -.000199 |
| 356.000 | 100.467 | .84855 | 22.361 | .4675 | -.000185 |
| 364.000 | 104.201 | .86074 | 23.557 | .4660 | -.000173 |
| 372.000 | 107.924 | .87232 | 24.751 | .4647 | -.000162 |
| 380.000 | 111.636 | .88333 | 25.941 | .4634 | -.000153 |
| 388.000 | 115.339 | .89381 | 27.129 | .4622 | -.000145 |
| 396.000 | 119.032 | .90380 | 28.315 | .4611 | -.000137 |
| 404.000 | 122.716 | .91332 | 29.498 | .4600 | -.000130 |
| 412.000 | 126.393 | .92242 | 30.679 | .4590 | -.000124 |
| 420.000 | 130.061 | .93111 | 31.857 | .4580 | -.000118 |
| 428.000 | 133.721 | .93942 | 33.034 | .4571 | -.000113 |
| 436.000 | 137.375 | .94738 | 34.208 | .4562 | -.000109 |
| 444.000 | 141.021 | .95500 | 35.380 | .4554 | -.000104 |
| 452.000 | 144.661 | .96231 | 36.551 | .4546 | -.000100 |
| 460.000 | 148.294 | .96933 | 37.719 | .4538 | -.000096 |
| 468.000 | 151.922 | .97606 | 38.886 | .4530 | -.000093 |
| 476.000 | 155.543 | .98253 | 40.051 | .4523 | -.000090 |
| 484.000 | 159.158 | .98875 | 41.214 | .4516 | -.000087 |
| 492.000 | 162.768 | .99474 | 42.375 | .4509 | -.000084 |
| 500.000 | 166.373 | 1.00050 | 43.534 | .4503 | -.000081 |

Table 11. Continued.

NF3 ISOCHORE AT 5.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 231.310 | 41.392 | .43044 | 1.064 | .7415 | -.017485 |
| 236.000 | 44.772 | .45634 | 1.961 | .7080 | -.003813 |
| 244.000 | 50.344 | .49631 | 3.372 | .6875 | -.001829 |
| 252.000 | 55.794 | .53257 | 4.757 | .6756 | -.001231 |
| 260.000 | 61.163 | .56586 | 6.134 | .6671 | -.000929 |
| 268.000 | 66.472 | .59662 | 7.506 | .6604 | -.000744 |
| 276.000 | 71.733 | .62518 | 8.875 | .6550 | -.000618 |
| 284.000 | 76.955 | .65179 | 10.242 | .6505 | -.000527 |
| 292.000 | 82.142 | .67667 | 11.606 | .6465 | -.000458 |
| 300.000 | 87.300 | .69998 | 12.970 | .6431 | -.000405 |
| 308.000 | 92.432 | .72188 | 14.331 | .6400 | -.000362 |
| 316.000 | 97.541 | .74250 | 15.692 | .6373 | -.000327 |
| 324.000 | 102.629 | .76194 | 17.051 | .6348 | -.000298 |
| 332.000 | 107.698 | .78031 | 18.408 | .6325 | -.000274 |
| 340.000 | 112.750 | .79768 | 19.765 | .6304 | -.000253 |
| 348.000 | 117.785 | .81415 | 21.120 | .6284 | -.000236 |
| 356.000 | 122.805 | .82977 | 22.473 | .6266 | -.000220 |
| 364.000 | 127.811 | .84462 | 23.826 | .6249 | -.000207 |
| 372.000 | 132.803 | .85873 | 25.177 | .6233 | -.000195 |
| 380.000 | 137.783 | .87218 | 26.526 | .6218 | -.000185 |
| 388.000 | 142.751 | .88500 | 27.875 | .6203 | -.000176 |
| 396.000 | 147.708 | .89723 | 29.221 | .6189 | -.000167 |
| 404.000 | 152.655 | .90891 | 30.567 | .6176 | -.000160 |
| 412.000 | 157.591 | .92008 | 31.911 | .6164 | -.000153 |
| 420.000 | 162.517 | .93077 | 33.254 | .6152 | -.000147 |
| 428.000 | 167.434 | .94101 | 34.595 | .6140 | -.000141 |
| 436.000 | 172.342 | .95082 | 35.935 | .6129 | -.000136 |
| 444.000 | 177.241 | .96023 | 37.274 | .6119 | -.000131 |
| 452.000 | 182.132 | .96926 | 38.611 | .6108 | -.000126 |
| 460.000 | 187.015 | .97794 | 39.946 | .6099 | -.000122 |
| 468.000 | 191.890 | .98628 | 41.281 | .6089 | -.000118 |
| 476.000 | 196.757 | .99430 | 42.614 | .6080 | -.000115 |
| 484.000 | 201.617 | 1.00202 | 43.945 | .6071 | -.000111 |
| 492.000 | 206.470 | 1.00945 | 45.275 | .6062 | -.000108 |
| 500.000 | 211.316 | 1.01662 | 46.604 | .6053 | -.000105 |

Table 11. Continued.

NF3 ISOCHORE AT 6.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 233.188 | 43.610 | .37488 | .356 | .9237 | -.044724 |
| 236.000 | 46.145 | .39194 | .890 | .8896 | -.005383 |
| 244.000 | 53.150 | .43664 | 2.345 | .8658 | -.001870 |
| 252.000 | 60.026 | .47748 | 3.817 | .8541 | -.001187 |
| 260.000 | 66.824 | .51520 | 5.304 | .8459 | -.000878 |
| 268.000 | 73.566 | .55024 | 6.802 | .8397 | -.000698 |
| 276.000 | 80.262 | .58293 | 8.309 | .8346 | -.000580 |
| 284.000 | 86.921 | .61351 | 9.824 | .8303 | -.000496 |
| 292.000 | 93.549 | .64220 | 11.345 | .8266 | -.000434 |
| 300.000 | 100.148 | .66917 | 12.871 | .8233 | -.000386 |
| 308.000 | 106.723 | .69458 | 14.401 | .8204 | -.000348 |
| 316.000 | 113.275 | .71856 | 15.934 | .8177 | -.000317 |
| 324.000 | 119.807 | .74123 | 17.470 | .8153 | -.000292 |
| 332.000 | 126.321 | .76269 | 19.008 | .8131 | -.000271 |
| 340.000 | 132.817 | .78304 | 20.548 | .8110 | -.000253 |
| 348.000 | 139.296 | .80237 | 22.089 | .8090 | -.000238 |
| 356.000 | 145.761 | .82074 | 23.631 | .8071 | -.000225 |
| 364.000 | 152.211 | .83822 | 25.174 | .8054 | -.000213 |
| 372.000 | 158.648 | .85488 | 26.718 | .8037 | -.000203 |
| 380.000 | 165.071 | .87076 | 28.262 | .8021 | -.000194 |
| 388.000 | 171.482 | .88593 | 29.806 | .8006 | -.000186 |
| 396.000 | 177.881 | .90042 | 31.351 | .7992 | -.000179 |
| 404.000 | 184.269 | .91429 | 32.895 | .7978 | -.000173 |
| 412.000 | 190.645 | .92756 | 34.439 | .7964 | -.000167 |
| 420.000 | 197.011 | .94027 | 35.982 | .7951 | -.000161 |
| 428.000 | 203.367 | .95246 | 37.525 | .7938 | -.000156 |
| 436.000 | 209.712 | .96416 | 39.067 | .7926 | -.000152 |
| 444.000 | 216.048 | .97539 | 40.609 | .7914 | -.000148 |
| 452.000 | 222.375 | .98619 | 42.150 | .7902 | -.000144 |
| 460.000 | 228.692 | .99656 | 43.690 | .7891 | -.000140 |
| 468.000 | 235.000 | 1.00655 | 45.229 | .7880 | -.000136 |
| 476.000 | 241.299 | 1.01616 | 46.768 | .7869 | -.000133 |
| 484.000 | 247.590 | 1.02542 | 48.305 | .7858 | -.000130 |
| 492.000 | 253.873 | 1.03434 | 49.841 | .7848 | -.000127 |
| 500.000 | 260.148 | 1.04295 | 51.377 | .7838 | -.000125 |

Table 11. Continued.

NF3 ISOCHORE AT 7.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 233.913 | 44.499 | .32686 | .041 | 1.1021 | -.189899 |
| 236.000 | 46.752 | .34037 | .417 | 1.0716 | -.004383 |
| 244.000 | 55.244 | .38901 | 1.947 | 1.0550 | -.001208 |
| 252.000 | 63.651 | .43398 | 3.548 | 1.0474 | -.000755 |
| 260.000 | 72.009 | .47586 | 5.190 | 1.0422 | -.000563 |
| 268.000 | 80.330 | .51500 | 6.861 | 1.0382 | -.000456 |
| 276.000 | 88.622 | .55169 | 8.554 | 1.0348 | -.000387 |
| 284.000 | 96.889 | .58617 | 10.264 | 1.0320 | -.000340 |
| 292.000 | 105.134 | .61862 | 11.988 | 1.0294 | -.000305 |
| 300.000 | 113.360 | .64924 | 13.724 | 1.0270 | -.000279 |
| 308.000 | 121.568 | .67816 | 15.469 | 1.0249 | -.000259 |
| 316.000 | 129.759 | .70553 | 17.222 | 1.0229 | -.000243 |
| 324.000 | 137.934 | .73146 | 18.982 | 1.0210 | -.000230 |
| 332.000 | 146.095 | .75607 | 20.748 | 1.0192 | -.000219 |
| 340.000 | 154.242 | .77945 | 22.519 | 1.0175 | -.000210 |
| 348.000 | 162.375 | .80169 | 24.294 | 1.0159 | -.000202 |
| 356.000 | 170.496 | .82287 | 26.072 | 1.0143 | -.000195 |
| 364.000 | 178.604 | .84305 | 27.854 | 1.0127 | -.000189 |
| 372.000 | 186.700 | .86232 | 29.637 | 1.0112 | -.000184 |
| 380.000 | 194.784 | .88071 | 31.423 | 1.0098 | -.000180 |
| 388.000 | 202.856 | .89830 | 33.211 | 1.0084 | -.000176 |
| 396.000 | 210.918 | .91513 | 35.000 | 1.0070 | -.000172 |
| 404.000 | 218.968 | .93125 | 36.790 | 1.0056 | -.000168 |
| 412.000 | 227.008 | .94669 | 38.580 | 1.0043 | -.000165 |
| 420.000 | 235.037 | .96151 | 40.372 | 1.0030 | -.000162 |
| 428.000 | 243.055 | .97572 | 42.163 | 1.0017 | -.000159 |
| 436.000 | 251.064 | .98938 | 43.955 | 1.0004 | -.000157 |
| 444.000 | 259.062 | 1.00250 | 45.747 | .9992 | -.000154 |
| 452.000 | 267.050 | 1.01513 | 47.539 | .9979 | -.000152 |
| 460.000 | 275.029 | 1.02728 | 49.330 | .9967 | -.000150 |
| 468.000 | 282.998 | 1.03897 | 51.121 | .9956 | -.000148 |
| 476.000 | 290.958 | 1.05024 | 52.912 | .9944 | -.000146 |
| 484.000 | 298.908 | 1.06111 | 54.702 | .9932 | -.000144 |
| 492.000 | 306.850 | 1.07158 | 56.491 | .9921 | -.000142 |
| 500.000 | 314.782 | 1.08170 | 58.279 | .9909 | -.000140 |

Table 11. Continued.

NF3 ISOCHORE AT 7.920 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 234.000 | 44.607 | .28949 | 0.000 | 1.2451 | 0.000000 |
| 236.000 | 47.097 | .30306 | .371 | 1.2451 | -.000005 |
| 244.000 | 57.058 | .35511 | 2.044 | 1.2450 | -.000025 |
| 252.000 | 67.016 | .40385 | 3.826 | 1.2447 | -.000042 |
| 260.000 | 76.972 | .44957 | 5.668 | 1.2443 | -.000056 |
| 268.000 | 86.925 | .49255 | 7.552 | 1.2438 | -.000069 |
| 276.000 | 96.873 | .53301 | 9.469 | 1.2432 | -.000081 |
| 284.000 | 106.816 | .57116 | 11.410 | 1.2425 | -.000091 |
| 292.000 | 116.753 | .60719 | 13.373 | 1.2417 | -.000100 |
| 300.000 | 126.684 | .64127 | 15.353 | 1.2409 | -.000107 |
| 308.000 | 136.607 | .67354 | 17.346 | 1.2400 | -.000114 |
| 316.000 | 146.524 | .70414 | 19.352 | 1.2391 | -.000120 |
| 324.000 | 156.433 | .73320 | 21.368 | 1.2381 | -.000125 |
| 332.000 | 166.334 | .76082 | 23.393 | 1.2371 | -.000130 |
| 340.000 | 176.226 | .78710 | 25.426 | 1.2360 | -.000134 |
| 348.000 | 186.110 | .81214 | 27.464 | 1.2350 | -.000137 |
| 356.000 | 195.986 | .83601 | 29.509 | 1.2338 | -.000140 |
| 364.000 | 205.852 | .85880 | 31.558 | 1.2327 | -.000143 |
| 372.000 | 215.709 | .88057 | 33.611 | 1.2316 | -.000145 |
| 380.000 | 225.557 | .90139 | 35.667 | 1.2304 | -.000147 |
| 388.000 | 235.395 | .92131 | 37.726 | 1.2292 | -.000148 |
| 396.000 | 245.224 | .94039 | 39.788 | 1.2280 | -.000150 |
| 404.000 | 255.044 | .95868 | 41.851 | 1.2268 | -.000151 |
| 412.000 | 264.854 | .97622 | 43.917 | 1.2256 | -.000152 |
| 420.000 | 274.654 | .99306 | 45.983 | 1.2244 | -.000152 |
| 428.000 | 284.444 | 1.00923 | 48.051 | 1.2232 | -.000153 |
| 436.000 | 294.224 | 1.02478 | 50.119 | 1.2219 | -.000153 |
| 444.000 | 303.995 | 1.03973 | 52.187 | 1.2207 | -.000154 |
| 452.000 | 313.756 | 1.05413 | 54.256 | 1.2195 | -.000154 |
| 460.000 | 323.507 | 1.06798 | 56.325 | 1.2183 | -.000154 |
| 468.000 | 333.248 | 1.08134 | 58.394 | 1.2170 | -.000154 |
| 476.000 | 342.979 | 1.09421 | 60.463 | 1.2158 | -.000153 |
| 484.000 | 352.701 | 1.10662 | 62.531 | 1.2146 | -.000153 |

Table 11. Continued.

NF3 ISOCHORE AT 9.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 233.930 | 44.520 | .25432 | .036 | 1.4263 | .199779 |
| 236.000 | 47.540 | .26920 | .488 | 1.4713 | .007078 |
| 240.000 | 53.465 | .29770 | 1.433 | 1.4886 | .002903 |
| 244.000 | 59.439 | .32554 | 2.428 | 1.4979 | .001892 |
| 248.000 | 65.444 | .35265 | 3.455 | 1.5044 | .001408 |
| 252.000 | 71.472 | .37902 | 4.506 | 1.5094 | .001115 |
| 256.000 | 77.518 | .40466 | 5.577 | 1.5134 | .000914 |
| 260.000 | 83.579 | .42958 | 6.663 | 1.5168 | .000766 |
| 264.000 | 89.652 | .45381 | 7.764 | 1.5196 | .000651 |
| 268.000 | 95.735 | .47737 | 8.877 | 1.5220 | .000558 |
| 272.000 | 101.827 | .50028 | 10.000 | 1.5241 | .000482 |
| 276.000 | 107.927 | .52257 | 11.132 | 1.5259 | .000417 |
| 280.000 | 114.034 | .54425 | 12.273 | 1.5274 | .000363 |
| 284.000 | 120.146 | .56535 | 13.421 | 1.5288 | .000315 |
| 288.000 | 126.264 | .58588 | 14.576 | 1.5300 | .000273 |
| 292.000 | 132.386 | .60587 | 15.738 | 1.5310 | .000236 |
| 296.000 | 138.512 | .62534 | 16.905 | 1.5319 | .000204 |
| 300.000 | 144.640 | .64430 | 18.077 | 1.5326 | .000174 |
| 304.000 | 150.772 | .66278 | 19.254 | 1.5333 | .000148 |
| 308.000 | 156.906 | .68079 | 20.435 | 1.5338 | .000124 |
| 312.000 | 163.042 | .69834 | 21.621 | 1.5342 | .000102 |
| 316.000 | 169.180 | .71546 | 22.810 | 1.5346 | .000083 |
| 320.000 | 175.319 | .73215 | 24.002 | 1.5349 | .000065 |
| 324.000 | 181.459 | .74844 | 25.198 | 1.5351 | .000048 |
| 328.000 | 187.600 | .76433 | 26.396 | 1.5353 | .000033 |
| 332.000 | 193.742 | .77984 | 27.598 | 1.5354 | .000019 |
| 336.000 | 199.883 | .79498 | 28.801 | 1.5354 | .000006 |
| 340.000 | 206.025 | .80977 | 30.007 | 1.5354 | -.000006 |
| 344.000 | 212.167 | .82422 | 31.216 | 1.5354 | -.000017 |
| 348.000 | 218.308 | .83833 | 32.426 | 1.5353 | -.000028 |
| 352.000 | 224.449 | .85211 | 33.638 | 1.5352 | -.000037 |
| 356.000 | 230.590 | .86559 | 34.852 | 1.5350 | -.000046 |
| 360.000 | 236.729 | .87876 | 36.067 | 1.5348 | -.000055 |
| 364.000 | 242.868 | .89164 | 37.284 | 1.5346 | -.000062 |
| 368.000 | 249.006 | .90424 | 38.502 | 1.5343 | -.000070 |
| 372.000 | 255.143 | .91656 | 39.721 | 1.5340 | -.000076 |
| 376.000 | 261.278 | .92862 | 40.942 | 1.5337 | -.000083 |
| 380.000 | 267.412 | .94041 | 42.164 | 1.5334 | -.000089 |
| 384.000 | 273.545 | .95196 | 43.386 | 1.5330 | -.000094 |
| 388.000 | 279.676 | .96326 | 44.610 | 1.5326 | -.000099 |
| 392.000 | 285.806 | .97433 | 45.834 | 1.5322 | -.000104 |
| 396.000 | 291.934 | .98517 | 47.060 | 1.5318 | -.000109 |
| 400.000 | 298.060 | .99578 | 48.285 | 1.5313 | -.000113 |
| 404.000 | 304.184 | 1.00618 | 49.512 | 1.5309 | -.000117 |
| 408.000 | 310.307 | 1.01637 | 50.739 | 1.5304 | -.000121 |
| 412.000 | 316.427 | 1.02636 | 51.967 | 1.5299 | -.000125 |
| 416.000 | 322.546 | 1.03614 | 53.195 | 1.5294 | -.000128 |
| 420.000 | 328.663 | 1.04574 | 54.423 | 1.5289 | -.000131 |
| 424.000 | 334.777 | 1.05514 | 55.652 | 1.5283 | -.000134 |
| 428.000 | 340.889 | 1.06437 | 56.881 | 1.5278 | -.000137 |
| 432.000 | 346.999 | 1.07341 | 58.110 | 1.5272 | -.000140 |
| 436.000 | 353.107 | 1.08228 | 59.340 | 1.5267 | -.000142 |
| 440.000 | 359.213 | 1.09099 | 60.570 | 1.5261 | -.000145 |

Table 11. Continued.

NF3 ISOCHORE AT 10.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 233.503 | 43.994 | .22660 | .310 | 1.6604 | .075649 |
| 236.000 | 48.241 | .24585 | 1.020 | 1.7230 | .012050 |
| 240.000 | 55.205 | .27665 | 2.171 | 1.7553 | .005775 |
| 244.000 | 62.266 | .30692 | 3.364 | 1.7742 | .003911 |
| 248.000 | 69.391 | .33653 | 4.590 | 1.7877 | .002970 |
| 252.000 | 76.564 | .36542 | 5.840 | 1.7984 | .002387 |
| 256.000 | 83.776 | .39359 | 7.111 | 1.8071 | .001984 |
| 260.000 | 91.019 | .42104 | 8.400 | 1.8144 | .001684 |
| 264.000 | 98.290 | .44778 | 9.704 | 1.8206 | .001452 |
| 268.000 | 105.583 | .47383 | 11.022 | 1.8261 | .001265 |
| 272.000 | 112.897 | .49920 | 12.352 | 1.8308 | .001111 |
| 276.000 | 120.229 | .52392 | 13.692 | 1.8350 | .000981 |
| 280.000 | 127.576 | .54799 | 15.042 | 1.8387 | .000871 |
| 284.000 | 134.938 | .57145 | 16.400 | 1.8420 | .000775 |
| 288.000 | 142.312 | .59431 | 17.766 | 1.8449 | .000692 |
| 292.000 | 149.696 | .61658 | 19.139 | 1.8475 | .000618 |
| 296.000 | 157.091 | .63830 | 20.519 | 1.8499 | .000553 |
| 300.000 | 164.495 | .65947 | 21.904 | 1.8519 | .000495 |
| 304.000 | 171.907 | .68012 | 23.295 | 1.8538 | .000443 |
| 308.000 | 179.325 | .70025 | 24.691 | 1.8555 | .000395 |
| 312.000 | 186.750 | .71990 | 26.092 | 1.8570 | .000352 |
| 316.000 | 194.181 | .73907 | 27.497 | 1.8583 | .000314 |
| 320.000 | 201.617 | .75777 | 28.906 | 1.8595 | .000278 |
| 324.000 | 209.057 | .77604 | 30.318 | 1.8605 | .000245 |
| 328.000 | 216.501 | .79387 | 31.734 | 1.8615 | .000215 |
| 332.000 | 223.948 | .81129 | 33.152 | 1.8623 | .000188 |
| 336.000 | 231.399 | .82830 | 34.574 | 1.8630 | .000163 |
| 340.000 | 238.852 | .84492 | 35.998 | 1.8636 | .000139 |
| 344.000 | 246.307 | .86116 | 37.425 | 1.8641 | .000117 |
| 348.000 | 253.764 | .87703 | 38.854 | 1.8645 | .000097 |
| 352.000 | 261.223 | .89255 | 40.285 | 1.8649 | .000078 |
| 356.000 | 268.683 | .90773 | 41.718 | 1.8651 | .000061 |
| 360.000 | 276.144 | .92257 | 43.153 | 1.8654 | .000044 |
| 364.000 | 283.606 | .93708 | 44.590 | 1.8655 | .000029 |
| 368.000 | 291.068 | .95129 | 46.028 | 1.8656 | .000015 |
| 372.000 | 298.531 | .96518 | 47.467 | 1.8656 | .000001 |
| 376.000 | 305.993 | .97879 | 48.908 | 1.8656 | -.000011 |
| 380.000 | 313.455 | .99210 | 50.350 | 1.8655 | -.000023 |
| 384.000 | 320.917 | 1.00514 | 51.793 | 1.8654 | -.000034 |
| 388.000 | 328.379 | 1.01790 | 53.237 | 1.8653 | -.000044 |
| 392.000 | 335.839 | 1.03041 | 54.681 | 1.8651 | -.000054 |
| 396.000 | 343.299 | 1.04266 | 56.127 | 1.8648 | -.000063 |
| 400.000 | 350.758 | 1.05466 | 57.574 | 1.8646 | -.000072 |
| 404.000 | 358.215 | 1.06642 | 59.021 | 1.8643 | -.000080 |

Table 11. Continued.

NF3 ISOCHORE AT 11.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 232.416 | 42.685 | .20081 | 1.174 | 1.9648 | .044829 |
| 236.000 | 49.898 | .23118 | 2.516 | 2.0442 | .013076 |
| 240.000 | 58.161 | .26497 | 3.979 | 2.0840 | .007801 |
| 244.000 | 66.553 | .29823 | 5.462 | 2.1104 | .005643 |
| 248.000 | 75.036 | .33082 | 6.969 | 2.1303 | .004425 |
| 252.000 | 83.590 | .36268 | 8.495 | 2.1463 | .003627 |
| 256.000 | 92.203 | .39380 | 10.040 | 2.1597 | .003056 |
| 260.000 | 100.865 | .42417 | 11.601 | 2.1710 | .002623 |
| 264.000 | 109.569 | .45379 | 13.176 | 2.1808 | .002281 |
| 268.000 | 118.309 | .48267 | 14.764 | 2.1893 | .002004 |
| 272.000 | 127.082 | .51084 | 16.364 | 2.1968 | .001773 |
| 276.000 | 135.883 | .53830 | 17.974 | 2.2035 | .001578 |
| 280.000 | 144.709 | .56508 | 19.593 | 2.2095 | .001411 |
| 284.000 | 153.558 | .59119 | 21.221 | 2.2149 | .001266 |
| 288.000 | 162.427 | .61665 | 22.856 | 2.2197 | .001139 |
| 292.000 | 171.315 | .64148 | 24.498 | 2.2240 | .001027 |
| 296.000 | 180.218 | .66570 | 26.147 | 2.2279 | .000928 |
| 300.000 | 189.137 | .68933 | 27.802 | 2.2314 | .000839 |
| 304.000 | 198.069 | .71239 | 29.463 | 2.2346 | .000759 |
| 308.000 | 207.014 | .73489 | 31.128 | 2.2375 | .000686 |
| 312.000 | 215.969 | .75685 | 32.798 | 2.2401 | .000621 |
| 316.000 | 224.934 | .77829 | 34.472 | 2.2425 | .000561 |
| 320.000 | 233.909 | .79922 | 36.150 | 2.2446 | .000506 |
| 324.000 | 242.891 | .81967 | 37.832 | 2.2465 | .000456 |
| 328.000 | 251.881 | .83964 | 39.517 | 2.2483 | .000410 |
| 332.000 | 260.877 | .85915 | 41.205 | 2.2498 | .000368 |
| 336.000 | 269.879 | .87822 | 42.896 | 2.2512 | .000329 |
| 340.000 | 278.886 | .89685 | 44.590 | 2.2525 | .000293 |
| 344.000 | 287.898 | .91507 | 46.286 | 2.2536 | .000259 |
| 348.000 | 296.915 | .93288 | 47.984 | 2.2545 | .000228 |
| 352.000 | 305.935 | .95029 | 49.684 | 2.2554 | .000199 |
| 356.000 | 314.958 | .96733 | 51.386 | 2.2561 | .000172 |
| 360.000 | 323.983 | .98399 | 53.090 | 2.2568 | .000147 |
| 364.000 | 333.012 | 1.00030 | 54.796 | 2.2573 | .000123 |
| 368.000 | 342.042 | 1.01625 | 56.502 | 2.2577 | .000101 |
| 372.000 | 351.073 | 1.03187 | 58.210 | 2.2581 | .000080 |

Table 11. Continued.

NF3 ISOCHORE AT 12.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 230.408 | 40.364 | .17558 | 3.120 | 2.3546 | .032221 |
| 232.000 | 44.148 | .19072 | 3.917 | 2.3959 | .021328 |
| 236.000 | 53.870 | .22878 | 5.815 | 2.4590 | .012081 |
| 240.000 | 63.791 | .26640 | 7.683 | 2.4995 | .008590 |
| 244.000 | 73.852 | .30336 | 9.554 | 2.5297 | .006682 |
| 248.000 | 84.021 | .33956 | 11.435 | 2.5538 | .005453 |
| 252.000 | 94.277 | .37496 | 13.327 | 2.5738 | .004582 |
| 256.000 | 104.607 | .40955 | 15.232 | 2.5908 | .003927 |
| 260.000 | 115.000 | .44331 | 17.149 | 2.6054 | .003414 |
| 264.000 | 125.448 | .47626 | 19.075 | 2.6182 | .002999 |
| 268.000 | 135.944 | .50840 | 21.012 | 2.6295 | .002655 |
| 272.000 | 146.483 | .53976 | 22.958 | 2.6395 | .002365 |
| 276.000 | 157.059 | .57034 | 24.912 | 2.6485 | .002118 |
| 280.000 | 167.669 | .60017 | 26.874 | 2.6565 | .001904 |
| 284.000 | 178.310 | .62927 | 28.843 | 2.6637 | .001717 |
| 288.000 | 188.978 | .65766 | 30.819 | 2.6703 | .001552 |
| 292.000 | 199.671 | .68535 | 32.800 | 2.6762 | .001405 |
| 296.000 | 210.387 | .71238 | 34.787 | 2.6815 | .001275 |
| 300.000 | 221.123 | .73875 | 36.779 | 2.6864 | .001157 |
| 304.000 | 231.878 | .76448 | 38.775 | 2.6908 | .001052 |
| 308.000 | 242.649 | .78961 | 40.776 | 2.6948 | .000956 |
| 312.000 | 253.436 | .81413 | 42.780 | 2.6985 | .000868 |
| 316.000 | 264.236 | .83808 | 44.788 | 2.7018 | .000789 |
| 320.000 | 275.050 | .86148 | 46.800 | 2.7048 | .000716 |
| 324.000 | 285.874 | .88433 | 48.814 | 2.7075 | .000649 |
| 328.000 | 296.709 | .90665 | 50.831 | 2.7100 | .000587 |
| 332.000 | 307.554 | .92847 | 52.851 | 2.7122 | .000531 |
| 336.000 | 318.407 | .94979 | 54.873 | 2.7142 | .000478 |
| 340.000 | 329.268 | .97063 | 56.897 | 2.7161 | .000429 |
| 344.000 | 340.135 | .99100 | 58.923 | 2.7177 | .000384 |
| 348.000 | 351.009 | 1.01093 | 60.950 | 2.7191 | .000342 |

Table 11. Continued.

NF3 ISOCHORE AT 13.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 227.273 | 36.961 | .15046 | 6.763 | 2.8478 | .025811 |
| 228.000 | 39.038 | .15840 | 7.229 | 2.8654 | .022921 |
| 230.000 | 44.810 | .18025 | 8.473 | 2.9055 | .017674 |
| 232.000 | 50.654 | .20200 | 9.686 | 2.9374 | .014476 |
| 234.000 | 56.557 | .22361 | 10.881 | 2.9641 | .012295 |
| 236.000 | 62.508 | .24504 | 12.067 | 2.9870 | .010696 |
| 238.000 | 68.503 | .26629 | 13.246 | 3.0071 | .009465 |
| 240.000 | 74.535 | .28732 | 14.423 | 3.0250 | .008482 |
| 242.000 | 80.602 | .30814 | 15.598 | 3.0412 | .007676 |
| 244.000 | 86.699 | .32873 | 16.773 | 3.0558 | .007000 |
| 246.000 | 92.824 | .34910 | 17.947 | 3.0692 | .006424 |
| 248.000 | 98.975 | .36923 | 19.122 | 3.0816 | .005926 |
| 250.000 | 105.150 | .38912 | 20.298 | 3.0930 | .005490 |
| 252.000 | 111.346 | .40879 | 21.475 | 3.1036 | .005105 |
| 254.000 | 117.563 | .42821 | 22.653 | 3.1134 | .004762 |
| 256.000 | 123.800 | .44740 | 23.832 | 3.1226 | .004455 |
| 258.000 | 130.054 | .46636 | 25.012 | 3.1313 | .004177 |
| 260.000 | 136.324 | .48509 | 26.194 | 3.1394 | .003924 |
| 262.000 | 142.611 | .50358 | 27.378 | 3.1470 | .003694 |
| 264.000 | 148.912 | .52185 | 28.562 | 3.1541 | .003482 |
| 266.000 | 155.227 | .53989 | 29.748 | 3.1609 | .003288 |
| 268.000 | 161.555 | .55771 | 30.936 | 3.1673 | .003109 |
| 270.000 | 167.896 | .57530 | 32.125 | 3.1734 | .002942 |
| 272.000 | 174.249 | .59268 | 33.315 | 3.1791 | .002788 |
| 274.000 | 180.612 | .60984 | 34.506 | 3.1845 | .002644 |
| 276.000 | 186.986 | .62679 | 35.698 | 3.1897 | .002509 |
| 278.000 | 193.371 | .64353 | 36.892 | 3.1946 | .002384 |
| 280.000 | 199.765 | .66006 | 38.087 | 3.1992 | .002266 |
| 282.000 | 206.167 | .67638 | 39.283 | 3.2036 | .002155 |
| 284.000 | 212.579 | .69250 | 40.479 | 3.2078 | .002050 |
| 286.000 | 218.999 | .70843 | 41.677 | 3.2118 | .001952 |
| 288.000 | 225.426 | .72416 | 42.876 | 3.2156 | .001859 |
| 290.000 | 231.861 | .73969 | 44.076 | 3.2193 | .001771 |
| 292.000 | 238.303 | .75504 | 45.277 | 3.2227 | .001688 |
| 294.000 | 244.752 | .77019 | 46.478 | 3.2260 | .001609 |
| 296.000 | 251.207 | .78516 | 47.681 | 3.2292 | .001535 |
| 298.000 | 257.668 | .79995 | 48.884 | 3.2322 | .001463 |
| 300.000 | 264.136 | .81457 | 50.088 | 3.2350 | .001396 |
| 302.000 | 270.609 | .82900 | 51.293 | 3.2378 | .001331 |
| 304.000 | 277.087 | .84326 | 52.498 | 3.2404 | .001270 |
| 306.000 | 283.570 | .85735 | 53.704 | 3.2428 | .001211 |
| 308.000 | 290.058 | .87127 | 54.911 | 3.2452 | .001155 |
| 310.000 | 296.551 | .88503 | 56.118 | 3.2475 | .001102 |
| 312.000 | 303.048 | .89862 | 57.326 | 3.2496 | .001051 |
| 314.000 | 309.549 | .91205 | 58.534 | 3.2517 | .001002 |
| 316.000 | 316.054 | .92533 | 59.743 | 3.2536 | .000955 |
| 318.000 | 322.563 | .93844 | 60.953 | 3.2555 | .000910 |
| 320.000 | 329.076 | .95141 | 62.162 | 3.2573 | .000867 |
| 322.000 | 335.592 | .96422 | 63.373 | 3.2590 | .000826 |
| 324.000 | 342.112 | .97689 | 64.583 | 3.2606 | .000786 |
| 326.000 | 348.635 | .98940 | 65.795 | 3.2621 | .000748 |
| 328.000 | 355.160 | 1.00178 | 67.006 | 3.2636 | .000712 |

Table 11. Continued.

NF3 ISOCHORE AT 14.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 222.861 | 32.572 | .12556 | 12.816 | 3.4645 | .022137 |
| 224.000 | 36.533 | .14011 | 13.717 | 3.4883 | .019766 |
| 226.000 | 43.547 | .16553 | 15.267 | 3.5246 | .016677 |
| 228.000 | 50.628 | .19076 | 16.788 | 3.5556 | .014441 |
| 230.000 | 57.767 | .21577 | 18.290 | 3.5827 | .012734 |
| 232.000 | 64.957 | .24053 | 19.778 | 3.6068 | .011380 |
| 234.000 | 72.193 | .26504 | 21.257 | 3.6284 | .010275 |
| 236.000 | 79.470 | .28928 | 22.729 | 3.6480 | .009352 |
| 238.000 | 86.784 | .31325 | 24.196 | 3.6659 | .008568 |
| 240.000 | 94.132 | .33695 | 25.658 | 3.6824 | .007892 |
| 242.000 | 101.512 | .36036 | 27.118 | 3.6975 | .007302 |
| 244.000 | 108.922 | .38350 | 28.575 | 3.7116 | .006782 |
| 246.000 | 116.358 | .40635 | 30.031 | 3.7247 | .006319 |
| 248.000 | 123.820 | .42892 | 31.485 | 3.7369 | .005904 |
| 250.000 | 131.305 | .45121 | 32.939 | 3.7483 | .005530 |
| 252.000 | 138.813 | .47322 | 34.392 | 3.7591 | .005191 |
| 254.000 | 146.341 | .49496 | 35.844 | 3.7691 | .004882 |
| 256.000 | 153.889 | .51642 | 37.296 | 3.7786 | .004599 |
| 258.000 | 161.455 | .53761 | 38.748 | 3.7875 | .004338 |
| 260.000 | 169.039 | .55853 | 40.200 | 3.7960 | .004098 |
| 262.000 | 176.639 | .57919 | 41.652 | 3.8039 | .003876 |
| 264.000 | 184.254 | .59958 | 43.104 | 3.8115 | .003670 |
| 266.000 | 191.884 | .61972 | 44.556 | 3.8186 | .003478 |
| 268.000 | 199.528 | .63960 | 46.009 | 3.8254 | .003299 |
| 270.000 | 207.186 | .65922 | 47.461 | 3.8318 | .003131 |
| 272.000 | 214.855 | .67860 | 48.914 | 3.8379 | .002974 |
| 274.000 | 222.537 | .69773 | 50.367 | 3.8437 | .002827 |
| 276.000 | 230.230 | .71662 | 51.820 | 3.8492 | .002688 |
| 278.000 | 237.934 | .73527 | 53.273 | 3.8545 | .002558 |
| 280.000 | 245.648 | .75369 | 54.727 | 3.8595 | .002435 |
| 282.000 | 253.372 | .77187 | 56.181 | 3.8642 | .002318 |
| 284.000 | 261.105 | .78983 | 57.635 | 3.8688 | .002208 |
| 286.000 | 268.847 | .80756 | 59.089 | 3.8731 | .002104 |
| 288.000 | 276.597 | .82507 | 60.544 | 3.8772 | .002005 |
| 290.000 | 284.355 | .84236 | 61.999 | 3.8811 | .001911 |
| 292.000 | 292.121 | .85944 | 63.454 | 3.8848 | .001821 |
| 294.000 | 299.894 | .87631 | 64.909 | 3.8884 | .001736 |
| 296.000 | 307.675 | .89297 | 66.364 | 3.8918 | .001655 |
| 298.000 | 315.461 | .90942 | 67.820 | 3.8950 | .001578 |
| 300.000 | 323.255 | .92568 | 69.275 | 3.8981 | .001504 |
| 302.000 | 331.054 | .94173 | 70.731 | 3.9010 | .001434 |
| 304.000 | 338.859 | .95759 | 72.187 | 3.9038 | .001367 |
| 306.000 | 346.669 | .97326 | 73.643 | 3.9065 | .001302 |
| 308.000 | 354.485 | .98874 | 75.099 | 3.9090 | .001241 |

Table 11. Continued.

NF3 ISOCHORE AT 15.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 217.076 | 27.447 | .10138 | 22.066 | 4.2287 | .019869 |
| 218.000 | 31.365 | .11536 | 22.963 | 4.2465 | .018627 |
| 220.000 | 39.894 | .14540 | 24.879 | 4.2814 | .016404 |
| 222.000 | 48.488 | .17513 | 26.766 | 4.3124 | .014642 |
| 224.000 | 57.141 | .20454 | 28.632 | 4.3402 | .013205 |
| 226.000 | 65.847 | .23361 | 30.482 | 4.3654 | .012006 |
| 228.000 | 74.601 | .26235 | 32.319 | 4.3883 | .010988 |
| 230.000 | 83.399 | .29074 | 34.145 | 4.4094 | .010110 |
| 232.000 | 92.238 | .31878 | 35.962 | 4.4289 | .009344 |
| 234.000 | 101.113 | .34647 | 37.772 | 4.4469 | .008669 |
| 236.000 | 110.024 | .37381 | 39.576 | 4.4636 | .008069 |
| 238.000 | 118.967 | .40079 | 41.375 | 4.4792 | .007532 |
| 240.000 | 127.940 | .42743 | 43.170 | 4.4937 | .007047 |
| 242.000 | 136.941 | .45372 | 44.961 | 4.5074 | .006608 |
| 244.000 | 145.969 | .47967 | 46.749 | 4.5202 | .006208 |
| 246.000 | 155.022 | .50528 | 48.533 | 4.5322 | .005841 |
| 248.000 | 164.098 | .53055 | 50.316 | 4.5436 | .005505 |
| 250.000 | 173.196 | .55548 | 52.096 | 4.5543 | .005195 |
| 252.000 | 182.314 | .58009 | 53.874 | 4.5644 | .004908 |
| 254.000 | 191.453 | .60437 | 55.650 | 4.5739 | .004641 |
| 256.000 | 200.610 | .62833 | 57.425 | 4.5830 | .004394 |
| 258.000 | 209.784 | .65197 | 59.199 | 4.5915 | .004163 |
| 260.000 | 218.975 | .67530 | 60.971 | 4.5996 | .003947 |
| 262.000 | 228.182 | .69832 | 62.741 | 4.6073 | .003745 |
| 264.000 | 237.404 | .72104 | 64.511 | 4.6146 | .003555 |
| 266.000 | 246.641 | .74346 | 66.280 | 4.6215 | .003377 |
| 268.000 | 255.890 | .76558 | 68.047 | 4.6281 | .003209 |
| 270.000 | 265.153 | .78742 | 69.814 | 4.6344 | .003050 |
| 272.000 | 274.428 | .80897 | 71.580 | 4.6403 | .002901 |
| 274.000 | 283.714 | .83024 | 73.345 | 4.6460 | .002759 |
| 276.000 | 293.011 | .85123 | 75.110 | 4.6514 | .002626 |
| 278.000 | 302.319 | .87195 | 76.873 | 4.6565 | .002499 |
| 280.000 | 311.637 | .89241 | 78.636 | 4.6614 | .002378 |
| 282.000 | 320.964 | .91260 | 80.398 | 4.6660 | .002264 |
| 284.000 | 330.301 | .93253 | 82.160 | 4.6704 | .002155 |
| 286.000 | 339.646 | .95221 | 83.921 | 4.6746 | .002051 |
| 288.000 | 348.999 | .97164 | 85.681 | 4.6786 | .001953 |
| 290.000 | 358.360 | .99082 | 87.440 | 4.6824 | .001859 |

Table 11. Continued.

NF3 ISOCHORE AT 16.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 209.872 | 21.943 | .07859 | 35.358 | 5.1684 | .018399 |
| 210.000 | 22.605 | .08091 | 35.510 | 5.1707 | .018273 |
| 212.000 | 32.981 | .11694 | 37.859 | 5.2054 | .016478 |
| 214.000 | 43.424 | .15253 | 40.179 | 5.2368 | .014977 |
| 216.000 | 53.927 | .18767 | 42.476 | 5.2655 | .013700 |
| 218.000 | 64.485 | .22235 | 44.754 | 5.2918 | .012597 |
| 220.000 | 75.093 | .25658 | 47.015 | 5.3160 | .011633 |
| 222.000 | 85.747 | .29034 | 49.263 | 5.3384 | .010783 |
| 224.000 | 96.445 | .32365 | 51.499 | 5.3592 | .010026 |
| 226.000 | 107.183 | .35650 | 53.724 | 5.3785 | .009348 |
| 228.000 | 117.958 | .38890 | 55.941 | 5.3966 | .008737 |
| 230.000 | 128.769 | .42085 | 58.150 | 5.4135 | .008182 |
| 232.000 | 139.612 | .45235 | 60.351 | 5.4294 | .007677 |
| 234.000 | 150.485 | .48342 | 62.546 | 5.4442 | .007215 |
| 236.000 | 161.388 | .51405 | 64.736 | 5.4582 | .006790 |
| 238.000 | 172.318 | .54425 | 66.920 | 5.4714 | .006398 |
| 240.000 | 183.273 | .57403 | 69.099 | 5.4839 | .006036 |
| 242.000 | 194.253 | .60339 | 71.274 | 5.4956 | .005700 |
| 244.000 | 205.255 | .63234 | 73.446 | 5.5067 | .005387 |
| 246.000 | 216.279 | .66088 | 75.613 | 5.5172 | .005096 |
| 248.000 | 227.323 | .68903 | 77.777 | 5.5271 | .004824 |
| 250.000 | 238.387 | .71678 | 79.938 | 5.5365 | .004569 |
| 252.000 | 249.469 | .74415 | 82.096 | 5.5454 | .004330 |
| 254.000 | 260.568 | .77114 | 84.251 | 5.5538 | .004106 |
| 256.000 | 271.684 | .79775 | 86.403 | 5.5618 | .003894 |
| 258.000 | 282.815 | .82400 | 88.553 | 5.5694 | .003695 |
| 260.000 | 293.961 | .84989 | 90.700 | 5.5766 | .003507 |
| 262.000 | 305.121 | .87542 | 92.846 | 5.5834 | .003330 |
| 264.000 | 316.295 | .90060 | 94.989 | 5.5899 | .003162 |
| 266.000 | 327.481 | .92544 | 97.129 | 5.5961 | .003002 |
| 268.000 | 338.679 | .94994 | 99.268 | 5.6019 | .002851 |
| 270.000 | 349.888 | .97411 | 101.405 | 5.6075 | .002708 |

Table 11. Continued.

NF3 ISOCHORE AT 17.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 201.249 | 16.476 | .05792 | 53.597 | 6.3179 | .017416 |
| 202.000 | 21.226 | .07434 | 54.669 | 6.3307 | .016850 |
| 204.000 | 33.920 | .11764 | 57.503 | 6.3630 | .015480 |
| 206.000 | 46.676 | .16030 | 60.312 | 6.3928 | .014282 |
| 208.000 | 59.489 | .20234 | 63.098 | 6.4203 | .013223 |
| 210.000 | 72.356 | .24376 | 65.865 | 6.4457 | .012279 |
| 212.000 | 85.271 | .28457 | 68.615 | 6.4694 | .011433 |
| 214.000 | 98.232 | .32476 | 71.350 | 6.4915 | .010669 |
| 216.000 | 111.236 | .36434 | 74.072 | 6.5122 | .009976 |
| 218.000 | 124.280 | .40333 | 76.782 | 6.5315 | .009344 |
| 220.000 | 137.361 | .44173 | 79.480 | 6.5496 | .008766 |
| 222.000 | 150.478 | .47955 | 82.169 | 6.5666 | .008234 |
| 224.000 | 163.627 | .51680 | 84.849 | 6.5825 | .007744 |
| 226.000 | 176.807 | .55349 | 87.520 | 6.5976 | .007291 |
| 228.000 | 190.017 | .58962 | 90.183 | 6.6117 | .006871 |
| 230.000 | 203.254 | .62521 | 92.840 | 6.6251 | .006481 |
| 232.000 | 216.516 | .66026 | 95.490 | 6.6377 | .006117 |
| 234.000 | 229.804 | .69479 | 98.133 | 6.6496 | .005777 |
| 236.000 | 243.114 | .72881 | 100.771 | 6.6608 | .005459 |
| 238.000 | 256.447 | .76232 | 103.403 | 6.6714 | .005161 |
| 240.000 | 269.799 | .79533 | 106.030 | 6.6814 | .004881 |
| 242.000 | 283.172 | .82785 | 108.652 | 6.6909 | .004618 |
| 244.000 | 296.563 | .85989 | 111.270 | 6.6999 | .004370 |
| 246.000 | 309.971 | .89146 | 113.883 | 6.7084 | .004137 |
| 248.000 | 323.396 | .92257 | 116.492 | 6.7165 | .003916 |
| 250.000 | 336.837 | .95322 | 119.097 | 6.7241 | .003707 |
| 252.000 | 350.292 | .98343 | 121.697 | 6.7313 | .003509 |

Table 11. Continued.

NF3 ISOCHORE AT 18.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 191.243 | 11.458 | .04003 | 77.762 | 7.7196 | .016749 |
| 192.000 | 17.310 | .06024 | 79.065 | 7.7321 | .016261 |
| 193.000 | 25.051 | .08673 | 80.780 | 7.7481 | .015648 |
| 194.000 | 32.806 | .11299 | 82.487 | 7.7634 | .015068 |
| 195.000 | 40.577 | .13904 | 84.189 | 7.7782 | .014519 |
| 196.000 | 48.363 | .16487 | 85.884 | 7.7925 | .013999 |
| 197.000 | 56.162 | .19049 | 87.573 | 7.8062 | .013504 |
| 198.000 | 63.975 | .21589 | 89.257 | 7.8195 | .013033 |
| 199.000 | 71.801 | .24108 | 90.936 | 7.8323 | .012585 |
| 200.000 | 79.639 | .26607 | 92.610 | 7.8447 | .012157 |
| 201.000 | 87.490 | .29084 | 94.280 | 7.8566 | .011749 |
| 202.000 | 95.352 | .31541 | 95.945 | 7.8682 | .011359 |
| 203.000 | 103.226 | .33977 | 97.606 | 7.8793 | .010986 |
| 204.000 | 111.111 | .36393 | 99.263 | 7.8901 | .010629 |
| 205.000 | 119.006 | .38789 | 100.916 | 7.9006 | .010287 |
| 206.000 | 126.912 | .41165 | 102.565 | 7.9107 | .009958 |
| 207.000 | 134.828 | .43521 | 104.211 | 7.9205 | .009643 |
| 208.000 | 142.753 | .45858 | 105.853 | 7.9300 | .009340 |
| 209.000 | 150.687 | .48175 | 107.493 | 7.9392 | .009049 |
| 210.000 | 158.631 | .50473 | 109.129 | 7.9481 | .008769 |
| 211.000 | 166.584 | .52752 | 110.762 | 7.9567 | .008500 |
| 212.000 | 174.545 | .55013 | 112.392 | 7.9651 | .008240 |
| 213.000 | 182.514 | .57254 | 114.019 | 7.9732 | .007990 |
| 214.000 | 190.491 | .59477 | 115.644 | 7.9811 | .007749 |
| 215.000 | 198.476 | .61682 | 117.265 | 7.9887 | .007516 |
| 216.000 | 206.468 | .63869 | 118.885 | 7.9961 | .007291 |
| 217.000 | 214.468 | .66038 | 120.502 | 8.0033 | .007074 |
| 218.000 | 222.475 | .68189 | 122.116 | 8.0103 | .006865 |
| 219.000 | 230.488 | .70323 | 123.728 | 8.0170 | .006662 |
| 220.000 | 238.509 | .72439 | 125.338 | 8.0236 | .006466 |
| 221.000 | 246.536 | .74538 | 126.946 | 8.0300 | .006276 |
| 222.000 | 254.569 | .76620 | 128.552 | 8.0362 | .006092 |
| 223.000 | 262.608 | .78685 | 130.156 | 8.0422 | .005914 |
| 224.000 | 270.653 | .80734 | 131.757 | 8.0480 | .005741 |
| 225.000 | 278.704 | .82766 | 133.357 | 8.0536 | .005574 |
| 226.000 | 286.760 | .84782 | 134.954 | 8.0591 | .005412 |
| 227.000 | 294.822 | .86781 | 136.550 | 8.0645 | .005255 |
| 228.000 | 302.889 | .88765 | 138.144 | 8.0696 | .005102 |
| 229.000 | 310.961 | .90732 | 139.737 | 8.0747 | .004954 |
| 230.000 | 319.038 | .92684 | 141.327 | 8.0796 | .004811 |
| 231.000 | 327.120 | .94621 | 142.916 | 8.0843 | .004671 |
| 232.000 | 335.207 | .96542 | 144.503 | 8.0889 | .004535 |
| 233.000 | 343.298 | .98448 | 146.089 | 8.0934 | .004403 |
| 234.000 | 351.394 | 1.00339 | 147.673 | 8.0977 | .004275 |
| 235.000 | 359.493 | 1.02215 | 149.255 | 8.1019 | .004150 |

Table 11. Continued.

NF3 ISOCHORE AT 19.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 179.919 | 7.236 | .02546 | 108.950 | 9.4275 | .016303 |
| 180.000 | 7.996 | .02812 | 109.117 | 9.4289 | .016255 |
| 181.000 | 17.433 | .06097 | 111.190 | 9.4448 | .015666 |
| 182.000 | 26.886 | .09351 | 113.257 | 9.4602 | .015106 |
| 183.000 | 36.353 | .12575 | 115.316 | 9.4750 | .014572 |
| 184.000 | 45.836 | .15769 | 117.369 | 9.4894 | .014062 |
| 185.000 | 55.332 | .18933 | 119.415 | 9.5032 | .013574 |
| 186.000 | 64.842 | .22067 | 121.456 | 9.5165 | .013108 |
| 187.000 | 74.365 | .25173 | 123.491 | 9.5294 | .012662 |
| 188.000 | 83.900 | .28250 | 125.520 | 9.5418 | .012234 |
| 189.000 | 93.448 | .31298 | 127.544 | 9.5539 | .011824 |
| 190.000 | 103.008 | .34318 | 129.563 | 9.5655 | .011430 |
| 191.000 | 112.579 | .37311 | 131.578 | 9.5767 | .011052 |
| 192.000 | 122.161 | .40276 | 133.587 | 9.5876 | .010689 |
| 193.000 | 131.754 | .43213 | 135.592 | 9.5981 | .010339 |
| 194.000 | 141.357 | .46124 | 137.593 | 9.6083 | .010003 |
| 195.000 | 150.971 | .49008 | 139.590 | 9.6181 | .009679 |
| 196.000 | 160.594 | .51866 | 141.582 | 9.6276 | .009367 |
| 197.000 | 170.226 | .54698 | 143.571 | 9.6369 | .009067 |
| 198.000 | 179.867 | .57504 | 145.556 | 9.6458 | .008777 |
| 199.000 | 189.517 | .60285 | 147.537 | 9.6544 | .008497 |
| 200.000 | 199.176 | .63040 | 149.514 | 9.6628 | .008227 |
| 201.000 | 208.843 | .65771 | 151.488 | 9.6709 | .007966 |
| 202.000 | 218.518 | .68477 | 153.459 | 9.6787 | .007713 |
| 203.000 | 228.200 | .71159 | 155.426 | 9.6863 | .007470 |
| 204.000 | 237.890 | .73817 | 157.391 | 9.6937 | .007234 |
| 205.000 | 247.587 | .76451 | 159.352 | 9.7008 | .007006 |
| 206.000 | 257.292 | .79062 | 161.310 | 9.7077 | .006785 |
| 207.000 | 267.003 | .81650 | 163.265 | 9.7143 | .006571 |
| 208.000 | 276.720 | .84215 | 165.218 | 9.7208 | .006364 |
| 209.000 | 286.444 | .86757 | 167.167 | 9.7271 | .006163 |
| 210.000 | 296.174 | .89277 | 169.114 | 9.7331 | .005968 |
| 211.000 | 305.910 | .91775 | 171.058 | 9.7390 | .005779 |
| 212.000 | 315.652 | .94250 | 173.000 | 9.7447 | .005596 |
| 213.000 | 325.400 | .96705 | 174.939 | 9.7502 | .005419 |
| 214.000 | 335.153 | .99138 | 176.875 | 9.7555 | .005246 |
| 215.000 | 344.911 | 1.01550 | 178.809 | 9.7607 | .005079 |
| 216.000 | 354.674 | 1.03941 | 180.741 | 9.7657 | .004916 |

Table 11. Continued.

NF3 ISOCHORE AT 20.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 167.370 | 4.030 | .01448 | 148.469 | 11.5120 | .016029 |
| 168.000 | 11.288 | .04041 | 150.050 | 11.5220 | .015659 |
| 169.000 | 22.818 | .08119 | 152.553 | 11.5373 | .015092 |
| 170.000 | 34.363 | .12156 | 155.049 | 11.5522 | .014549 |
| 171.000 | 45.922 | .16150 | 157.537 | 11.5665 | .014029 |
| 172.000 | 57.496 | .20102 | 160.019 | 11.5802 | .013530 |
| 173.000 | 69.083 | .24014 | 162.494 | 11.5935 | .013051 |
| 174.000 | 80.683 | .27885 | 164.962 | 11.6063 | .012591 |
| 175.000 | 92.295 | .31716 | 167.424 | 11.6187 | .012149 |
| 176.000 | 103.920 | .35507 | 169.881 | 11.6306 | .011723 |
| 177.000 | 115.556 | .39260 | 172.331 | 11.6422 | .011314 |
| 178.000 | 127.204 | .42975 | 174.776 | 11.6533 | .010921 |
| 179.000 | 138.863 | .46652 | 177.215 | 11.6640 | .010541 |
| 180.000 | 150.532 | .50291 | 179.649 | 11.6744 | .010176 |
| 181.000 | 162.211 | .53893 | 182.078 | 11.6844 | .009823 |
| 182.000 | 173.900 | .57460 | 184.502 | 11.6940 | .009483 |
| 183.000 | 185.599 | .60990 | 186.921 | 11.7033 | .009155 |
| 184.000 | 197.307 | .64485 | 189.336 | 11.7123 | .008838 |
| 185.000 | 209.024 | .67945 | 191.746 | 11.7210 | .008532 |
| 186.000 | 220.749 | .71371 | 194.151 | 11.7294 | .008236 |
| 187.000 | 232.482 | .74762 | 196.553 | 11.7375 | .007950 |
| 188.000 | 244.224 | .78120 | 198.950 | 11.7453 | .007673 |
| 189.000 | 255.973 | .81445 | 201.343 | 11.7528 | .007406 |
| 190.000 | 267.729 | .84738 | 203.731 | 11.7601 | .007147 |
| 191.000 | 279.493 | .87998 | 206.116 | 11.7671 | .006896 |
| 192.000 | 291.264 | .91226 | 208.497 | 11.7739 | .006653 |
| 193.000 | 303.041 | .94423 | 210.875 | 11.7804 | .006417 |
| 194.000 | 314.824 | .97589 | 213.249 | 11.7867 | .006189 |
| 195.000 | 326.614 | 1.00724 | 215.619 | 11.7928 | .005968 |
| 196.000 | 338.410 | 1.03830 | 217.986 | 11.7987 | .005754 |
| 197.000 | 350.211 | 1.06905 | 220.349 | 11.8043 | .005546 |

Table 11. Continued.

NF3 ISOCHORE AT 21.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 153.700 | 1.894 | .00706 | 198.018 | 14.0671 | .015907 |
| 154.000 | 6.117 | .02275 | 198.935 | 14.0719 | .015720 |
| 155.000 | 20.196 | .07463 | 201.983 | 14.0873 | .015114 |
| 156.000 | 34.291 | .12589 | 205.024 | 14.1021 | .014532 |
| 157.000 | 48.400 | .17656 | 208.056 | 14.1163 | .013974 |
| 158.000 | 62.524 | .22664 | 211.080 | 14.1300 | .013437 |
| 159.000 | 76.660 | .27613 | 214.096 | 14.1432 | .012921 |
| 160.000 | 90.810 | .32506 | 217.105 | 14.1559 | .012425 |
| 161.000 | 104.972 | .37342 | 220.106 | 14.1681 | .011947 |
| 162.000 | 119.146 | .42122 | 223.101 | 14.1798 | .011488 |
| 163.000 | 133.331 | .46848 | 226.089 | 14.1911 | .011045 |
| 164.000 | 147.528 | .51520 | 229.070 | 14.2019 | .010618 |
| 165.000 | 161.735 | .56139 | 232.044 | 14.2123 | .010206 |
| 166.000 | 175.952 | .60706 | 235.012 | 14.2223 | .009809 |
| 167.000 | 190.180 | .65222 | 237.975 | 14.2319 | .009426 |
| 168.000 | 204.416 | .69687 | 240.931 | 14.2412 | .009056 |
| 169.000 | 218.662 | .74102 | 243.881 | 14.2500 | .008699 |
| 170.000 | 232.916 | .78468 | 246.826 | 14.2586 | .008354 |
| 171.000 | 247.179 | .82787 | 249.765 | 14.2668 | .008020 |
| 172.000 | 261.449 | .87057 | 252.698 | 14.2746 | .007698 |
| 173.000 | 275.728 | .91281 | 255.627 | 14.2822 | .007386 |
| 174.000 | 290.014 | .95458 | 258.550 | 14.2894 | .007084 |
| 175.000 | 304.307 | .99590 | 261.468 | 14.2963 | .006792 |
| 176.000 | 318.606 | 1.03678 | 264.381 | 14.3030 | .006509 |
| 177.000 | 332.912 | 1.07721 | 267.290 | 14.3093 | .006236 |
| 178.000 | 347.225 | 1.11721 | 270.193 | 14.3154 | .005970 |

NF3 ISOCHORE AT 22.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 139.023 | .700 | .00275 | 260.017 | 17.2235 | .015949 |
| 140.000 | 17.541 | .06850 | 263.681 | 17.2387 | .015272 |
| 141.000 | 34.787 | .13488 | 267.421 | 17.2536 | .014608 |
| 142.000 | 52.048 | .20038 | 271.151 | 17.2679 | .013970 |
| 143.000 | 69.323 | .26502 | 274.871 | 17.2816 | .013356 |
| 144.000 | 86.611 | .32882 | 278.582 | 17.2947 | .012767 |
| 145.000 | 103.912 | .39178 | 282.284 | 17.3071 | .012200 |
| 146.000 | 121.225 | .45392 | 285.976 | 17.3191 | .011654 |
| 147.000 | 138.550 | .51526 | 289.661 | 17.3305 | .011129 |
| 148.000 | 155.886 | .57582 | 293.336 | 17.3413 | .010623 |
| 149.000 | 173.232 | .63560 | 297.004 | 17.3517 | .010135 |
| 150.000 | 190.589 | .69462 | 300.663 | 17.3616 | .009666 |
| 151.000 | 207.955 | .75290 | 304.315 | 17.3710 | .009213 |
| 152.000 | 225.331 | .81044 | 307.959 | 17.3800 | .008776 |
| 153.000 | 242.715 | .86726 | 311.596 | 17.3886 | .008354 |
| 154.000 | 260.108 | .92337 | 315.225 | 17.3967 | .007947 |
| 155.000 | 277.509 | .97878 | 318.848 | 17.4045 | .007554 |
| 156.000 | 294.917 | 1.03351 | 322.463 | 17.4119 | .007174 |
| 157.000 | 312.332 | 1.08757 | 326.071 | 17.4188 | .006807 |
| 158.000 | 329.754 | 1.14097 | 329.673 | 17.4255 | .006453 |
| 159.000 | 347.183 | 1.19372 | 333.268 | 17.4318 | .006110 |

Table 11. Continued.

NF3 ISOCHORE AT 23.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 123.448 | .182 | .00077 | 338.197 | 21.1699 | .016196 |
| 124.000 | 11.861 | .05002 | 340.779 | 21.1787 | .015729 |
| 125.000 | 33.048 | .13825 | 345.451 | 21.1940 | .014908 |
| 126.000 | 54.249 | .22514 | 350.109 | 21.2085 | .014121 |
| 127.000 | 75.465 | .31072 | 354.755 | 21.2223 | .013365 |
| 128.000 | 96.693 | .39502 | 359.389 | 21.2353 | .012640 |
| 129.000 | 117.935 | .47807 | 364.012 | 21.2475 | .011944 |
| 130.000 | 139.188 | .55988 | 368.622 | 21.2592 | .011276 |
| 131.000 | 160.453 | .64049 | 373.222 | 21.2701 | .010633 |
| 132.000 | 181.728 | .71992 | 377.810 | 21.2804 | .010015 |
| 133.000 | 203.014 | .79820 | 382.388 | 21.2901 | .009420 |
| 134.000 | 224.308 | .87534 | 386.956 | 21.2993 | .008848 |
| 135.000 | 245.612 | .95138 | 391.513 | 21.3078 | .008298 |
| 136.000 | 266.924 | 1.02632 | 396.060 | 21.3159 | .007768 |
| 137.000 | 288.244 | 1.10021 | 400.597 | 21.3234 | .007257 |
| 138.000 | 309.571 | 1.17305 | 405.124 | 21.3304 | .006765 |
| 139.000 | 330.904 | 1.24487 | 409.642 | 21.3369 | .006290 |
| 140.000 | 352.244 | 1.31568 | 414.151 | 21.3430 | .005833 |

NF3 ISOCHORE AT 24.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 107.074 | .027 | .00013 | 438.669 | 26.1953 | .016748 |
| 108.000 | 24.303 | .11277 | 444.203 | 26.2103 | .015713 |
| 109.000 | 50.521 | .23227 | 450.159 | 26.2255 | .014644 |
| 110.000 | 76.753 | .34967 | 456.097 | 26.2396 | .013621 |
| 111.000 | 103.000 | .46501 | 462.019 | 26.2527 | .012643 |
| 112.000 | 129.259 | .57835 | 467.923 | 26.2649 | .011707 |
| 113.000 | 155.529 | .68974 | 473.812 | 26.2762 | .010811 |
| 114.000 | 181.811 | .79922 | 479.684 | 26.2866 | .009953 |
| 115.000 | 208.102 | .90684 | 485.542 | 26.2961 | .009130 |
| 116.000 | 234.403 | 1.01264 | 491.383 | 26.3048 | .008342 |
| 117.000 | 260.711 | 1.11667 | 497.211 | 26.3128 | .007586 |
| 118.000 | 287.028 | 1.21897 | 503.023 | 26.3200 | .006860 |
| 119.000 | 313.351 | 1.31958 | 508.821 | 26.3265 | .006164 |
| 120.000 | 339.681 | 1.41854 | 514.606 | 26.3323 | .005496 |

Table 11. Continued.

NF3 ISOCHORE AT 25.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 89.971 | .002 | .00001 | 571.934 | 32.7759 | .017810 |
| 90.000 | .959 | .00513 | 572.165 | 32.7765 | .017761 |
| 91.000 | 33.744 | .17840 | 580.059 | 32.7934 | .016110 |
| 92.000 | 66.546 | .34798 | 587.925 | 32.8087 | .014542 |
| 93.000 | 99.361 | .51399 | 595.764 | 32.8225 | .013051 |
| 94.000 | 132.190 | .67654 | 603.578 | 32.8348 | .011633 |
| 95.000 | 165.030 | .83573 | 611.365 | 32.8458 | .010283 |
| 96.000 | 197.881 | .99165 | 619.128 | 32.8554 | .008999 |
| 97.000 | 230.741 | 1.14440 | 626.867 | 32.8638 | .007775 |
| 98.000 | 263.608 | 1.29407 | 634.582 | 32.8710 | .006608 |
| 99.000 | 296.483 | 1.44075 | 642.273 | 32.8770 | .005496 |
| 100.000 | 329.362 | 1.58452 | 649.942 | 32.8820 | .004435 |

NF3 ISOCHORE AT 26.000 MOL/L

| T,K | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| 72.183 | .000 | .00000 | 757.199 | 41.7825 | .019864 |
| 73.000 | 34.139 | .21633 | 766.216 | 41.7978 | .017536 |
| 74.000 | 75.945 | .47474 | 777.209 | 41.8140 | .014839 |
| 75.000 | 117.766 | .72635 | 788.154 | 41.8275 | .012301 |
| 76.000 | 159.599 | .97142 | 799.053 | 41.8386 | .009911 |
| 77.000 | 201.442 | 1.21018 | 809.906 | 41.8474 | .007658 |
| 78.000 | 243.293 | 1.44287 | 820.716 | 41.8540 | .005534 |
| 79.000 | 285.150 | 1.66969 | 831.482 | 41.8585 | .003530 |
| 80.000 | 327.010 | 1.89087 | 842.206 | 41.8611 | .001638 |

TABLE 12. Calculated P(ρ) Isotherms

The following pages give P(ρ) isotherms, as computed by the equation of state (6). The third column DP/DD is the isotherm slope $(\partial P/\partial \rho)$ in units of the bar and mol/L. The last two columns give the isochore slopes and curvatures, DP/DT ≡ $(\partial P/\partial T)$, D2P/DT2 ≡ $(\partial^2 P/\partial T^2)$ in units of the bar and kelvins.

These tables show that $\partial P/\partial \rho$ is non-negative, and that it increases monotonically with density.

Table 12. Calculated P(ρ) Isotherms.

NF3 ISOTHERM AT 80.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .000 | .000 | .99997 | 6.651 | .0000 | -.000000 |
| 25.565 | .000 | .00000 | 668.426 | 37.4843 | .018796 |
| 25.580 | 9.943 | .05844 | 673.736 | 37.6250 | .018230 |
| 25.600 | 23.490 | .13795 | 680.965 | 37.8157 | .017465 |
| 25.620 | 37.182 | .21818 | 688.267 | 38.0075 | .016698 |
| 25.640 | 51.021 | .29916 | 695.642 | 38.2003 | .015929 |
| 25.660 | 65.008 | .38088 | 703.091 | 38.3941 | .015158 |
| 25.680 | 79.145 | .46334 | 710.616 | 38.5891 | .014385 |
| 25.700 | 93.431 | .54655 | 718.216 | 38.7850 | .013610 |
| 25.720 | 107.873 | .63054 | 725.895 | 38.9821 | .012833 |
| 25.740 | 122.468 | .71530 | 733.653 | 39.1803 | .012053 |
| 25.760 | 137.220 | .80084 | 741.490 | 39.3795 | .011270 |
| 25.780 | 152.129 | .88716 | 749.408 | 39.5799 | .010485 |
| 25.800 | 167.197 | .97428 | 757.409 | 39.7814 | .009697 |
| 25.820 | 182.426 | 1.06220 | 765.493 | 39.9841 | .008906 |
| 25.840 | 197.818 | 1.15092 | 773.661 | 40.1879 | .008112 |
| 25.860 | 213.373 | 1.24047 | 781.915 | 40.3928 | .007315 |
| 25.880 | 229.095 | 1.33084 | 790.256 | 40.5990 | .006515 |
| 25.900 | 244.984 | 1.42204 | 798.686 | 40.8063 | .005711 |
| 25.920 | 261.043 | 1.51409 | 807.205 | 41.0148 | .004904 |
| 25.940 | 277.273 | 1.60698 | 815.815 | 41.2245 | .004093 |
| 25.960 | 293.676 | 1.70074 | 824.518 | 41.4355 | .003279 |
| 25.980 | 310.254 | 1.79537 | 833.314 | 41.6477 | .002460 |
| 26.000 | 327.010 | 1.89087 | 842.206 | 41.8611 | .001638 |
| 26.020 | 343.943 | 1.98725 | 851.195 | 42.0758 | .000811 |
| 26.040 | 361.058 | 2.08454 | 860.281 | 42.2918 | -.000019 |
| 26.060 | 378.355 | 2.18273 | 869.467 | 42.5090 | -.000854 |
| 26.080 | 395.837 | 2.28183 | 878.755 | 42.7276 | -.001693 |

Table 12. Continued.

NF3 ISOTHERM AT 100.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .001 | .009 | .99904 | 8.299 | .0001 | -.000000 |
| 24.419 | .009 | .00005 | 489.627 | 28.7231 | .017112 |
| 24.420 | .702 | .00346 | 489.972 | 28.7325 | .017082 |
| 24.440 | 10.551 | .05192 | 494.861 | 28.8666 | .016649 |
| 24.460 | 20.497 | .10079 | 499.791 | 29.0013 | .016217 |
| 24.480 | 30.542 | .15006 | 504.762 | 29.1366 | .015785 |
| 24.500 | 40.688 | .19974 | 509.774 | 29.2725 | .015354 |
| 24.520 | 50.934 | .24983 | 514.827 | 29.4090 | .014922 |
| 24.540 | 61.281 | .30034 | 519.923 | 29.5462 | .014490 |
| 24.560 | 71.731 | .35127 | 525.061 | 29.6839 | .014059 |
| 24.580 | 82.284 | .40262 | 530.243 | 29.8223 | .013627 |
| 24.600 | 92.941 | .45440 | 535.468 | 29.9613 | .013195 |
| 24.620 | 103.703 | .50660 | 540.737 | 30.1009 | .012763 |
| 24.640 | 114.571 | .55924 | 546.050 | 30.2412 | .012330 |
| 24.660 | 125.545 | .61231 | 551.409 | 30.3821 | .011897 |
| 24.680 | 136.627 | .66582 | 556.814 | 30.5237 | .011464 |
| 24.700 | 147.818 | .71977 | 562.264 | 30.6659 | .011030 |
| 24.720 | 159.118 | .77417 | 567.761 | 30.8088 | .010596 |
| 24.740 | 170.529 | .82901 | 573.306 | 30.9523 | .010161 |
| 24.760 | 182.051 | .88431 | 578.898 | 31.0966 | .009726 |
| 24.780 | 193.685 | .94007 | 584.539 | 31.2415 | .009290 |
| 24.800 | 205.433 | .99628 | 590.228 | 31.3871 | .008853 |
| 24.820 | 217.294 | 1.05296 | 595.967 | 31.5333 | .008416 |
| 24.840 | 229.272 | 1.11010 | 601.756 | 31.6803 | .007978 |
| 24.860 | 241.365 | 1.16772 | 607.596 | 31.8280 | .007538 |
| 24.880 | 253.576 | 1.22580 | 613.486 | 31.9764 | .007098 |
| 24.900 | 265.905 | 1.28437 | 619.429 | 32.1255 | .006657 |
| 24.920 | 278.353 | 1.34342 | 625.424 | 32.2754 | .006215 |
| 24.940 | 290.922 | 1.40296 | 631.473 | 32.4259 | .005772 |
| 24.960 | 303.613 | 1.46298 | 637.574 | 32.5772 | .005328 |
| 24.980 | 316.425 | 1.52350 | 643.731 | 32.7292 | .004882 |
| 25.000 | 329.362 | 1.58452 | 649.942 | 32.8820 | .004435 |
| 25.020 | 342.424 | 1.64604 | 656.209 | 33.0355 | .003987 |
| 25.040 | 355.611 | 1.70807 | 662.533 | 33.1898 | .003538 |
| 25.060 | 368.925 | 1.77060 | 668.913 | 33.3449 | .003087 |
| 25.080 | 382.368 | 1.83366 | 675.352 | 33.5007 | .002635 |
| 25.100 | 395.940 | 1.89723 | 681.848 | 33.6573 | .002181 |

Table 12. Continued.

NF3 ISOTHERM AT 120.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .013 | .128 | .99219 | 9.823 | .0011 | -.000000 |
| 23.215 | .127 | .00055 | 357.601 | 22.1445 | .016284 |
| 23.240 | 9.291 | .04007 | 362.014 | 22.2703 | .015924 |
| 23.280 | 23.911 | .10295 | 369.028 | 22.4691 | .015361 |
| 23.320 | 38.815 | .16682 | 376.143 | 22.6694 | .014801 |
| 23.360 | 54.004 | .23171 | 383.362 | 22.8712 | .014244 |
| 23.400 | 69.485 | .29762 | 390.685 | 23.0746 | .013689 |
| 23.440 | 85.261 | .36456 | 398.116 | 23.2797 | .013137 |
| 23.480 | 101.336 | .43256 | 405.655 | 23.4863 | .012587 |
| 23.520 | 117.715 | .50162 | 413.306 | 23.6947 | .012038 |
| 23.560 | 134.402 | .57176 | 421.070 | 23.9046 | .011491 |
| 23.600 | 151.402 | .64299 | 428.950 | 24.1163 | .010945 |
| 23.640 | 168.719 | .71532 | 436.947 | 24.3297 | .010400 |
| 23.680 | 186.359 | .78877 | 445.064 | 24.5449 | .009856 |
| 23.720 | 204.326 | .86336 | 453.303 | 24.7619 | .009312 |
| 23.760 | 222.625 | .93910 | 461.667 | 24.9806 | .008768 |
| 23.800 | 241.261 | 1.01600 | 470.157 | 25.2012 | .008224 |
| 23.840 | 260.239 | 1.09408 | 478.778 | 25.4236 | .007680 |
| 23.880 | 279.565 | 1.17336 | 487.530 | 25.6479 | .007136 |
| 23.920 | 299.243 | 1.25385 | 496.417 | 25.8741 | .006590 |
| 23.960 | 319.280 | 1.33557 | 505.441 | 26.1022 | .006044 |
| 24.000 | 339.681 | 1.41854 | 514.606 | 26.3323 | .005496 |
| 24.040 | 360.451 | 1.50277 | 523.913 | 26.5644 | .004947 |
| 24.080 | 381.596 | 1.58829 | 533.367 | 26.7986 | .004396 |

Table 12. Continued.

NF3 ISOTHERM AT 140.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .040 | .457 | .98179 | 11.224 | .0034 | -.000001 |
| .067 | .754 | .97015 | 10.957 | .0057 | -.000003 |
| 21.935 | .754 | .00295 | 255.568 | 16.9979 | .015940 |
| 21.960 | 7.095 | .02775 | 258.642 | 17.0894 | .015684 |
| 22.000 | 17.541 | .06850 | 263.681 | 17.2387 | .015272 |
| 22.040 | 28.190 | .10988 | 268.787 | 17.3890 | .014865 |
| 22.080 | 39.045 | .15191 | 273.959 | 17.5404 | .014461 |
| 22.120 | 50.108 | .19461 | 279.200 | 17.6928 | .014062 |
| 22.160 | 61.382 | .23796 | 284.510 | 17.8462 | .013666 |
| 22.200 | 72.869 | .28199 | 289.891 | 18.0008 | .013273 |
| 22.240 | 84.574 | .32669 | 295.343 | 18.1565 | .012884 |
| 22.280 | 96.498 | .37208 | 300.867 | 18.3132 | .012497 |
| 22.320 | 108.644 | .41817 | 306.466 | 18.4711 | .012113 |
| 22.360 | 121.016 | .46495 | 312.139 | 18.6302 | .011732 |
| 22.400 | 133.616 | .51245 | 317.888 | 18.7904 | .011353 |
| 22.440 | 146.448 | .56065 | 323.715 | 18.9517 | .010976 |
| 22.480 | 159.514 | .60959 | 329.620 | 19.1143 | .010601 |
| 22.520 | 172.818 | .65926 | 335.605 | 19.2781 | .010228 |
| 22.560 | 186.364 | .70967 | 341.671 | 19.4431 | .009856 |
| 22.600 | 200.153 | .76083 | 347.820 | 19.6093 | .009486 |
| 22.640 | 214.190 | .81275 | 354.052 | 19.7768 | .009118 |
| 22.680 | 228.479 | .86544 | 360.370 | 19.9455 | .008750 |
| 22.720 | 243.021 | .91891 | 366.774 | 20.1155 | .008383 |
| 22.760 | 257.822 | .97316 | 373.266 | 20.2868 | .008018 |
| 22.800 | 272.884 | 1.02820 | 379.848 | 20.4595 | .007653 |
| 22.840 | 288.211 | 1.08405 | 386.520 | 20.6335 | .007288 |
| 22.880 | 303.807 | 1.14071 | 393.285 | 20.8088 | .006924 |
| 22.920 | 319.675 | 1.19820 | 400.145 | 20.9855 | .006560 |
| 22.960 | 335.820 | 1.25652 | 407.099 | 21.1635 | .006197 |
| 23.000 | 352.244 | 1.31568 | 414.151 | 21.3430 | .005833 |
| 23.040 | 368.953 | 1.37570 | 421.302 | 21.5239 | .005469 |
| 23.080 | 385.950 | 1.43658 | 428.554 | 21.7062 | .005105 |

Table 12. Continued.

NF3 ISOTHERM AT 160.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .040 | .524 | .98538 | 12.924 | .0034 | -.000000 |
| .080 | 1.034 | .97180 | 12.573 | .0068 | -.000002 |
| .120 | 1.530 | .95860 | 12.230 | .0103 | -.000005 |
| .160 | 2.013 | .94560 | 11.892 | .0139 | -.000010 |
| .200 | 2.482 | .93272 | 11.554 | .0176 | -.000019 |
| .222 | 2.730 | .92578 | 11.371 | .0197 | -.000026 |
| 20.549 | 2.730 | .00999 | 174.284 | 12.8485 | .015943 |
| 20.560 | 4.697 | .01717 | 175.280 | 12.8800 | .015848 |
| 20.600 | 11.779 | .04298 | 178.849 | 12.9923 | .015514 |
| 20.640 | 19.005 | .06922 | 182.462 | 13.1053 | .015186 |
| 20.680 | 26.377 | .09588 | 186.121 | 13.2191 | .014862 |
| 20.720 | 33.895 | .12297 | 189.827 | 13.3335 | .014543 |
| 20.760 | 41.563 | .15050 | 193.578 | 13.4487 | .014229 |
| 20.800 | 49.382 | .17846 | 197.377 | 13.5647 | .013919 |
| 20.840 | 57.354 | .20688 | 201.224 | 13.6814 | .013613 |
| 20.880 | 65.481 | .23574 | 205.120 | 13.7988 | .013311 |
| 20.920 | 73.764 | .26505 | 209.065 | 13.9171 | .013012 |
| 20.960 | 82.207 | .29482 | 213.060 | 14.0361 | .012717 |
| 21.000 | 90.810 | .32506 | 217.105 | 14.1559 | .012425 |
| 21.040 | 99.576 | .35576 | 221.201 | 14.2765 | .012136 |
| 21.080 | 108.507 | .38693 | 225.350 | 14.3979 | .011850 |
| 21.120 | 117.605 | .41858 | 229.551 | 14.5202 | .011567 |
| 21.160 | 126.872 | .45070 | 233.805 | 14.6432 | .011287 |
| 21.200 | 136.310 | .48332 | 238.113 | 14.7672 | .011009 |
| 21.240 | 145.921 | .51643 | 242.476 | 14.8919 | .010733 |
| 21.280 | 155.709 | .55003 | 246.895 | 15.0175 | .010459 |
| 21.320 | 165.674 | .58413 | 251.370 | 15.1440 | .010188 |
| 21.360 | 175.819 | .61874 | 255.902 | 15.2714 | .009918 |
| 21.400 | 186.147 | .65386 | 260.492 | 15.3997 | .009650 |
| 21.440 | 196.659 | .68950 | 265.140 | 15.5289 | .009384 |
| 21.480 | 207.359 | .72566 | 269.848 | 15.6589 | .009120 |
| 21.520 | 218.248 | .76234 | 274.616 | 15.7899 | .008857 |
| 21.560 | 229.329 | .79956 | 279.445 | 15.9219 | .008595 |
| 21.600 | 240.604 | .83732 | 284.337 | 16.0548 | .008335 |
| 21.640 | 252.076 | .87563 | 289.291 | 16.1886 | .008076 |
| 21.680 | 263.748 | .91448 | 294.308 | 16.3234 | .007817 |
| 21.720 | 275.622 | .95389 | 299.391 | 16.4591 | .007560 |
| 21.760 | 287.700 | .99386 | 304.539 | 16.5959 | .007304 |
| 21.800 | 299.986 | 1.03440 | 309.753 | 16.7336 | .007048 |
| 21.840 | 312.482 | 1.07551 | 315.035 | 16.8724 | .006793 |
| 21.880 | 325.190 | 1.11721 | 320.385 | 17.0122 | .006539 |
| 21.920 | 338.113 | 1.15949 | 325.805 | 17.1530 | .006285 |
| 21.960 | 351.255 | 1.20236 | 331.295 | 17.2948 | .006032 |
| 22.000 | 364.618 | 1.24583 | 336.857 | 17.4377 | .005779 |
| 22.040 | 378.205 | 1.28991 | 342.491 | 17.5817 | .005526 |
| 22.080 | 392.018 | 1.33460 | 348.198 | 17.7267 | .005273 |

Table 12. Continued.

NF3 ISOTHERM AT 180.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .080 | 1.170 | .97695 | 14.299 | .0068 | -.000001 |
| .160 | 2.289 | .95599 | 13.694 | .0138 | -.000004 |
| .240 | 3.361 | .93577 | 13.107 | .0210 | -.000012 |
| .320 | 4.387 | .91594 | 12.529 | .0286 | -.000025 |
| .400 | 5.366 | .89634 | 11.954 | .0365 | -.000047 |
| .480 | 6.299 | .87686 | 11.377 | .0448 | -.000081 |
| .560 | 7.186 | .85743 | 10.797 | .0535 | -.000135 |
| .567 | 7.261 | .85575 | 10.747 | .0543 | -.000141 |
| 18.993 | 7.261 | .02554 | 108.713 | 9.4148 | .016306 |
| 19.040 | 12.409 | .04355 | 111.531 | 9.5122 | .015956 |
| 19.120 | 21.528 | .07523 | 116.453 | 9.6803 | .015378 |
| 19.200 | 31.045 | .10804 | 121.501 | 9.8504 | .014824 |
| 19.280 | 40.971 | .14199 | 126.679 | 10.0226 | .014291 |
| 19.360 | 51.317 | .17711 | 131.990 | 10.1969 | .013778 |
| 19.440 | 62.093 | .21342 | 137.436 | 10.3734 | .013282 |
| 19.520 | 73.311 | .25095 | 143.022 | 10.5522 | .012802 |
| 19.600 | 84.981 | .28970 | 148.751 | 10.7332 | .012336 |
| 19.680 | 97.115 | .32972 | 154.625 | 10.9165 | .011882 |
| 19.760 | 109.725 | .37103 | 160.648 | 11.1023 | .011441 |
| 19.840 | 122.823 | .41364 | 166.825 | 11.2905 | .011010 |
| 19.920 | 136.421 | .45760 | 173.157 | 11.4811 | .010589 |
| 20.000 | 150.532 | .50291 | 179.649 | 11.6744 | .010176 |
| 20.080 | 165.169 | .54961 | 186.305 | 11.8702 | .009771 |
| 20.160 | 180.345 | .59773 | 193.129 | 12.0687 | .009373 |
| 20.240 | 196.074 | .64729 | 200.125 | 12.2699 | .008981 |
| 20.320 | 212.370 | .69833 | 207.296 | 12.4738 | .008595 |
| 20.400 | 229.246 | .75087 | 214.647 | 12.6806 | .008214 |
| 20.480 | 246.718 | .80494 | 222.183 | 12.8902 | .007837 |
| 20.560 | 264.801 | .86057 | 229.907 | 13.1028 | .007465 |
| 20.640 | 283.509 | .91780 | 237.826 | 13.3184 | .007096 |
| 20.720 | 302.858 | .97665 | 245.942 | 13.5370 | .006729 |
| 20.800 | 322.865 | 1.03717 | 254.262 | 13.7587 | .006366 |
| 20.880 | 343.546 | 1.09937 | 262.791 | 13.9835 | .006004 |
| 20.960 | 364.917 | 1.16331 | 271.534 | 14.2116 | .005644 |
| 21.040 | 386.997 | 1.22900 | 280.495 | 14.4430 | .005285 |

Table 12. Continued.

NF3 ISOTHERM AT 200.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .160 | 2.564 | .96361 | 15.467 | .0137 | -.000003 |
| .320 | 4.955 | .93120 | 14.432 | .0283 | -.000013 |
| .480 | 7.184 | .90001 | 13.428 | .0438 | -.000035 |
| .640 | 9.253 | .86943 | 12.438 | .0603 | -.000073 |
| .800 | 11.164 | .83921 | 11.454 | .0779 | -.000135 |
| .960 | 12.919 | .80924 | 10.477 | .0968 | -.000233 |
| 1.120 | 14.517 | .77947 | 9.505 | .1169 | -.000389 |
| 1.259 | 15.776 | .75380 | 8.666 | .1357 | -.000612 |
| 17.133 | 15.776 | .05537 | 56.440 | 6.4883 | .017312 |
| 17.280 | 24.487 | .08522 | 61.848 | 6.7065 | .016211 |
| 17.440 | 34.874 | .12025 | 68.044 | 6.9487 | .015149 |
| 17.600 | 46.280 | .15813 | 74.592 | 7.1968 | .014196 |
| 17.760 | 58.763 | .19897 | 81.509 | 7.4510 | .013330 |
| 17.920 | 72.383 | .24290 | 88.810 | 7.7118 | .012534 |
| 18.080 | 87.204 | .29005 | 96.513 | 7.9793 | .011794 |
| 18.240 | 103.290 | .34054 | 104.636 | 8.2538 | .011100 |
| 18.400 | 120.710 | .39451 | 113.195 | 8.5357 | .010444 |
| 18.560 | 139.536 | .45211 | 122.210 | 8.8252 | .009820 |
| 18.720 | 159.843 | .51348 | 131.700 | 9.1226 | .009223 |
| 18.880 | 181.707 | .57877 | 141.686 | 9.4281 | .008647 |
| 19.040 | 205.210 | .64813 | 152.190 | 9.7421 | .008088 |
| 19.200 | 230.436 | .72174 | 163.233 | 10.0648 | .007545 |
| 19.360 | 257.475 | .79977 | 174.839 | 10.3965 | .007013 |
| 19.520 | 286.416 | .88237 | 187.034 | 10.7376 | .006491 |
| 19.680 | 317.358 | .96975 | 199.843 | 11.0883 | .005975 |
| 19.840 | 350.401 | 1.06208 | 213.295 | 11.4491 | .005465 |
| 20.000 | 385.648 | 1.15957 | 227.419 | 11.8201 | .004958 |

Table 12. Continued.

NF3 ISOTHERM AT 220.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .160 | 2.837 | .96949 | 17.226 | .0137 | -.000002 |
| .320 | 5.518 | .94275 | 16.295 | .0281 | -.000008 |
| .480 | 8.054 | .91725 | 15.400 | .0432 | -.000021 |
| .640 | 10.447 | .89240 | 14.523 | .0592 | -.000041 |
| .800 | 12.702 | .86798 | 13.659 | .0760 | -.000070 |
| .960 | 14.819 | .84387 | 12.806 | .0936 | -.000109 |
| 1.120 | 16.800 | .82005 | 11.967 | .1121 | -.000161 |
| 1.280 | 18.649 | .79649 | 11.142 | .1314 | -.000227 |
| 1.440 | 20.367 | .77321 | 10.335 | .1515 | -.000309 |
| 1.600 | 21.957 | .75022 | 9.546 | .1725 | -.000413 |
| 1.760 | 23.423 | .72755 | 8.778 | .1944 | -.000542 |
| 1.920 | 24.767 | .70520 | 8.033 | .2171 | -.000703 |
| 2.080 | 25.994 | .68321 | 7.310 | .2408 | -.000909 |
| 2.240 | 27.108 | .66158 | 6.612 | .2655 | -.001175 |
| 2.400 | 28.111 | .64034 | 5.938 | .2912 | -.001532 |
| 2.560 | 29.009 | .61949 | 5.287 | .3181 | -.002038 |
| 2.720 | 29.804 | .59903 | 4.658 | .3465 | -.002815 |
| 2.753 | 29.954 | .59491 | 4.532 | .3525 | -.003029 |
| 14.525 | 29.954 | .11274 | 17.219 | 3.8455 | .020820 |
| 14.560 | 30.570 | .11478 | 17.733 | 3.8768 | .020389 |
| 14.720 | 33.600 | .12479 | 20.172 | 4.0210 | .018682 |
| 14.880 | 37.034 | .13606 | 22.791 | 4.1685 | .017293 |
| 15.040 | 40.903 | .14868 | 25.599 | 4.3195 | .016132 |
| 15.200 | 45.237 | .16270 | 28.609 | 4.4745 | .015140 |
| 15.360 | 50.069 | .17820 | 31.828 | 4.6336 | .014276 |
| 15.520 | 55.434 | .19526 | 35.268 | 4.7972 | .013512 |
| 15.680 | 61.367 | .21396 | 38.938 | 4.9653 | .012827 |
| 15.840 | 67.907 | .23437 | 42.851 | 5.1382 | .012204 |
| 16.000 | 75.093 | .25658 | 47.015 | 5.3160 | .011633 |
| 16.160 | 82.966 | .28067 | 51.443 | 5.4989 | .011103 |
| 16.320 | 91.569 | .30674 | 56.146 | 5.6871 | .010607 |
| 16.480 | 100.948 | .33487 | 61.135 | 5.8807 | .010140 |
| 16.640 | 111.148 | .36517 | 66.423 | 6.0800 | .009696 |
| 16.800 | 122.220 | .39772 | 72.023 | 6.2850 | .009273 |
| 16.960 | 134.213 | .43262 | 77.947 | 6.4959 | .008865 |
| 17.120 | 147.181 | .46999 | 84.209 | 6.7129 | .008472 |
| 17.280 | 161.179 | .50992 | 90.822 | 6.9362 | .008089 |
| 17.440 | 176.263 | .55253 | 97.802 | 7.1660 | .007717 |
| 17.600 | 192.495 | .59793 | 105.163 | 7.4024 | .007352 |
| 17.760 | 209.937 | .64623 | 112.921 | 7.6456 | .006994 |
| 17.920 | 228.652 | .69756 | 121.093 | 7.8958 | .006641 |
| 18.080 | 248.709 | .75203 | 129.694 | 8.1532 | .006291 |
| 18.240 | 270.178 | .80978 | 138.744 | 8.4181 | .005945 |
| 18.400 | 293.132 | .87094 | 148.260 | 8.6905 | .005600 |
| 18.560 | 317.647 | .93564 | 158.262 | 8.9709 | .005257 |
| 18.720 | 343.803 | 1.00403 | 168.771 | 9.2593 | .004913 |
| 18.880 | 371.682 | 1.07625 | 179.808 | 9.5560 | .004569 |

Table 12. Continued.

NF3 ISOTHERM AT 230.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 5.799 | .94756 | 17.216 | .0280 | -.000007 |
| .640 | 11.038 | .90184 | 15.540 | .0589 | -.000033 |
| .960 | 15.750 | .85791 | 13.920 | .0927 | -.000084 |
| 1.280 | 19.952 | .81511 | 12.354 | .1294 | -.000167 |
| 1.600 | 23.664 | .77339 | 10.855 | .1691 | -.000288 |
| 1.920 | 26.908 | .73286 | 9.439 | .2115 | -.000453 |
| 2.240 | 29.715 | .69368 | 8.117 | .2567 | -.000674 |
| 2.560 | 32.114 | .65597 | 6.895 | .3045 | -.000965 |
| 2.880 | 34.139 | .61985 | 5.778 | .3548 | -.001349 |
| 3.200 | 35.823 | .58539 | 4.764 | .4075 | -.001867 |
| 3.520 | 37.198 | .55261 | 3.852 | .4625 | -.002595 |
| 3.840 | 38.298 | .52153 | 3.036 | .5200 | -.003696 |
| 4.160 | 39.151 | .49213 | 2.309 | .5803 | -.005610 |
| 4.480 | 39.785 | .46438 | 1.664 | .6448 | -.010056 |
| 4.557 | 39.907 | .45797 | 1.519 | .6614 | -.012244 |
| 12.155 | 39.907 | .17168 | 3.557 | 2.4239 | .030952 |
| 12.160 | 39.924 | .17169 | 3.578 | 2.4265 | .030791 |
| 12.480 | 41.312 | .17310 | 5.152 | 2.6017 | .023437 |
| 12.800 | 43.258 | .17672 | 7.073 | 2.7853 | .019405 |
| 13.120 | 45.882 | .18287 | 9.394 | 2.9799 | .016816 |
| 13.440 | 49.319 | .19189 | 12.169 | 3.1869 | .014982 |
| 13.760 | 53.725 | .20417 | 15.455 | 3.4076 | .013590 |
| 14.080 | 59.271 | .22013 | 19.310 | 3.6430 | .012476 |
| 14.400 | 66.151 | .24022 | 23.797 | 3.8939 | .011545 |
| 14.720 | 74.576 | .26493 | 28.981 | 4.1613 | .010741 |
| 15.040 | 84.781 | .29477 | 34.933 | 4.4460 | .010024 |
| 15.360 | 97.022 | .33031 | 41.725 | 4.7490 | .009370 |
| 15.680 | 111.583 | .37212 | 49.437 | 5.0712 | .008761 |
| 16.000 | 128.769 | .42085 | 58.150 | 5.4135 | .008182 |
| 16.320 | 148.915 | .47715 | 67.952 | 5.7771 | .007625 |
| 16.640 | 172.384 | .54173 | 78.939 | 6.1629 | .007082 |
| 16.960 | 199.573 | .61533 | 91.210 | 6.5722 | .006547 |
| 17.280 | 230.908 | .69876 | 104.874 | 7.0061 | .006016 |
| 17.600 | 266.853 | .79286 | 120.047 | 7.4660 | .005483 |
| 17.920 | 307.912 | .89851 | 136.854 | 7.9533 | .004946 |
| 18.240 | 354.629 | 1.01668 | 155.433 | 8.4694 | .004401 |

Table 12. Continued.

NF3 ISOTHERM AT 234.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 5.910 | .94934 | 17.583 | .0280 | -.000006 |
| .640 | 11.273 | .90531 | 15.943 | .0587 | -.000030 |
| .960 | 16.120 | .86305 | 14.360 | .0923 | -.000077 |
| 1.280 | 20.469 | .82191 | 12.829 | .1288 | -.000150 |
| 1.600 | 24.338 | .78182 | 11.365 | .1680 | -.000255 |
| 1.920 | 27.751 | .74289 | 9.982 | .2098 | -.000395 |
| 2.240 | 30.736 | .70526 | 8.692 | .2542 | -.000575 |
| 2.560 | 33.324 | .66907 | 7.501 | .3010 | -.000800 |
| 2.880 | 35.548 | .63441 | 6.412 | .3500 | -.001078 |
| 3.200 | 37.439 | .60134 | 5.425 | .4010 | -.001416 |
| 3.520 | 39.030 | .56991 | 4.537 | .4539 | -.001829 |
| 3.840 | 40.353 | .54012 | 3.745 | .5084 | -.002333 |
| 4.160 | 41.437 | .51197 | 3.044 | .5644 | -.002954 |
| 4.480 | 42.310 | .48542 | 2.428 | .6217 | -.003730 |
| 4.800 | 42.999 | .46044 | 1.892 | .6801 | -.004722 |
| 5.120 | 43.529 | .43698 | 1.432 | .7394 | -.006026 |
| 5.440 | 43.923 | .41500 | 1.042 | .7995 | -.007806 |
| 5.760 | 44.204 | .39444 | .720 | .8600 | -.010361 |
| 6.080 | 44.391 | .37527 | .463 | .9208 | -.014269 |
| 6.400 | 44.506 | .35743 | .268 | .9816 | -.020779 |
| 6.720 | 44.569 | .34089 | .132 | 1.0419 | -.032965 |
| 7.040 | 44.597 | .32559 | .050 | 1.1012 | -.060115 |
| 7.360 | 44.606 | .31150 | .012 | 1.1583 | -.142093 |
| 7.680 | 44.607 | .29853 | .001 | 1.2114 | -.669850 |
| 8.000 | 44.607 | .28659 | .000 | 1.2549 | 8.490979 |
| 8.320 | 44.607 | .27557 | .002 | 1.3044 | .430249 |
| 8.640 | 44.610 | .26538 | .014 | 1.3622 | .166301 |
| 8.960 | 44.618 | .25595 | .046 | 1.4268 | .093647 |
| 9.280 | 44.642 | .24726 | .111 | 1.4982 | .062503 |
| 9.600 | 44.694 | .23929 | .223 | 1.5765 | .046005 |
| 9.920 | 44.792 | .23208 | .401 | 1.6622 | .036094 |
| 10.240 | 44.960 | .22567 | .665 | 1.7556 | .029618 |
| 10.560 | 45.230 | .22014 | 1.039 | 1.8573 | .025125 |
| 10.880 | 45.640 | .21561 | 1.550 | 1.9678 | .021862 |
| 11.200 | 46.239 | .21220 | 2.227 | 2.0876 | .019402 |
| 11.520 | 47.087 | .21008 | 3.104 | 2.2173 | .017492 |
| 11.840 | 48.251 | .20946 | 4.217 | 2.3576 | .015967 |
| 12.160 | 49.815 | .21056 | 5.605 | 2.5090 | .014721 |
| 12.480 | 51.873 | .21363 | 7.311 | 2.6722 | .013679 |
| 12.800 | 54.533 | .21898 | 9.381 | 2.8477 | .012790 |
| 13.120 | 57.921 | .22691 | 11.864 | 3.0364 | .012016 |
| 13.440 | 62.175 | .23778 | 14.811 | 3.2389 | .011329 |
| 13.760 | 67.455 | .25197 | 18.279 | 3.4558 | .010707 |
| 14.080 | 73.936 | .26990 | 22.327 | 3.6879 | .010136 |
| 14.400 | 81.813 | .29202 | 27.016 | 3.9360 | .009602 |
| 14.720 | 91.302 | .31880 | 32.414 | 4.2008 | .009096 |
| 15.040 | 102.641 | .35077 | 38.589 | 4.4831 | .008609 |
| 15.360 | 116.090 | .38846 | 45.616 | 4.7839 | .008137 |
| 15.680 | 131.934 | .43247 | 53.574 | 5.1039 | .007673 |
| 16.000 | 150.485 | .48342 | 62.546 | 5.4442 | .007215 |
| 16.320 | 172.082 | .54195 | 72.621 | 5.8058 | .006757 |
| 16.640 | 197.091 | .60878 | 83.893 | 6.1896 | .006298 |
| 16.960 | 225.912 | .68464 | 96.465 | 6.5969 | .005835 |
| 17.280 | 258.978 | .77031 | 110.445 | 7.0289 | .005366 |
| 17.600 | 296.759 | .86664 | 125.951 | 7.4868 | .004888 |
| 17.920 | 339.763 | .97451 | 143.109 | 7.9720 | .004399 |
| 18.240 | 388.540 | 1.09486 | 162.058 | 8.4860 | .003898 |

Table 12. Continued.

NF3 ISOTHERM AT 240.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 6.078 | .95186 | 18.133 | .0279 | -.000006 |
| .640 | 11.625 | .91022 | 16.545 | .0586 | -.000027 |
| .960 | 16.673 | .87033 | 15.013 | .0919 | -.000068 |
| 1.280 | 21.239 | .83151 | 13.534 | .1279 | -.000130 |
| 1.600 | 25.341 | .79370 | 12.119 | .1666 | -.000217 |
| 1.920 | 29.003 | .75700 | 10.783 | .2077 | -.000330 |
| 2.240 | 32.252 | .72154 | 9.537 | .2511 | -.000469 |
| 2.560 | 35.117 | .68743 | 8.386 | .2967 | -.000635 |
| 2.880 | 37.630 | .65478 | 7.335 | .3443 | -.000827 |
| 3.200 | 39.822 | .62363 | 6.382 | .3937 | -.001044 |
| 3.520 | 41.724 | .59402 | 5.524 | .4447 | -.001283 |
| 3.840 | 43.367 | .56596 | 4.758 | .4971 | -.001538 |
| 4.160 | 44.779 | .53943 | 4.079 | .5507 | -.001802 |
| 4.480 | 45.987 | .51441 | 3.482 | .6054 | -.002064 |
| 4.800 | 47.016 | .49085 | 2.961 | .6609 | -.002309 |
| 5.120 | 47.889 | .46873 | 2.512 | .7171 | -.002517 |
| 5.440 | 48.630 | .44798 | 2.130 | .7739 | -.002665 |
| 5.760 | 49.259 | .42857 | 1.813 | .8313 | -.002728 |
| 6.080 | 49.797 | .41044 | 1.558 | .8893 | -.002680 |
| 6.400 | 50.263 | .39357 | 1.366 | .9480 | -.002505 |
| 6.720 | 50.678 | .37792 | 1.235 | 1.0077 | -.002195 |
| 7.040 | 51.060 | .36346 | 1.163 | 1.0685 | -.001756 |
| 7.360 | 51.428 | .35017 | 1.143 | 1.1309 | -.001204 |
| 7.680 | 51.796 | .33798 | 1.161 | 1.1953 | -.000556 |
| 8.000 | 52.173 | .32682 | 1.198 | 1.2619 | .000175 |
| 8.320 | 52.563 | .31660 | 1.245 | 1.3311 | .000982 |
| 8.640 | 52.972 | .30725 | 1.314 | 1.4033 | .001858 |
| 8.960 | 53.408 | .29871 | 1.417 | 1.4789 | .002785 |
| 9.280 | 53.884 | .29098 | 1.569 | 1.5584 | .003735 |
| 9.600 | 54.419 | .28407 | 1.784 | 1.6425 | .004675 |
| 9.920 | 55.035 | .27802 | 2.082 | 1.7320 | .005565 |
| 10.240 | 55.762 | .27289 | 2.481 | 1.8276 | .006370 |
| 10.560 | 56.636 | .26877 | 3.006 | 1.9301 | .007062 |
| 10.880 | 57.702 | .26577 | 3.681 | 2.0404 | .007625 |
| 11.200 | 59.011 | .26404 | 4.536 | 2.1594 | .008053 |
| 11.520 | 60.627 | .26374 | 5.604 | 2.2877 | .008353 |
| 11.840 | 62.624 | .26506 | 6.920 | 2.4262 | .008537 |
| 12.160 | 65.087 | .26823 | 8.523 | 2.5756 | .008620 |
| 12.480 | 68.114 | .27351 | 10.457 | 2.7367 | .008621 |
| 12.800 | 71.819 | .28118 | 12.767 | 2.9101 | .008553 |
| 13.120 | 76.330 | .29155 | 15.502 | 3.0965 | .008430 |
| 13.440 | 81.791 | .30497 | 18.715 | 3.2967 | .008264 |
| 13.760 | 88.365 | .32182 | 22.462 | 3.5114 | .008062 |
| 14.080 | 96.230 | .34250 | 26.802 | 3.7413 | .007832 |
| 14.400 | 105.588 | .36746 | 31.799 | 3.9871 | .007578 |
| 14.720 | 116.659 | .39716 | 37.518 | 4.2497 | .007303 |
| 15.040 | 129.684 | .43211 | 44.030 | 4.5297 | .007010 |
| 15.360 | 144.930 | .47285 | 51.411 | 4.8282 | .006700 |
| 15.680 | 162.688 | .51995 | 59.739 | 5.1459 | .006375 |
| 16.000 | 183.273 | .57403 | 69.099 | 5.4839 | .006036 |
| 16.320 | 207.031 | .63572 | 79.582 | 5.8430 | .005682 |
| 16.640 | 234.336 | .70573 | 91.283 | 6.2244 | .005313 |
| 16.960 | 265.593 | .78477 | 104.304 | 6.6291 | .004930 |
| 17.280 | 301.243 | .87363 | 118.758 | 7.0585 | .004532 |
| 17.600 | 341.763 | .97312 | 134.762 | 7.5137 | .004118 |
| 17.920 | 387.670 | 1.08412 | 152.445 | 7.9962 | .003687 |

Table 12. Continued.

NF3 ISOTHERM AT 245.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 6.218 | .95385 | 18.590 | .0279 | -.000005 |
| .640 | 11.917 | .91408 | 17.043 | .0584 | -.000025 |
| .960 | 17.131 | .87603 | 15.554 | .0916 | -.000061 |
| 1.280 | 21.877 | .83902 | 14.115 | .1273 | -.000117 |
| 1.600 | 26.171 | .80298 | 12.739 | .1655 | -.000192 |
| 1.920 | 30.038 | .76800 | 11.439 | .2061 | -.000289 |
| 2.240 | 33.502 | .73421 | 10.227 | .2489 | -.000405 |
| 2.560 | 36.593 | .70171 | 9.109 | .2938 | -.000540 |
| 2.880 | 39.342 | .67059 | 8.086 | .3405 | -.000692 |
| 3.200 | 41.778 | .64091 | 7.159 | .3890 | -.000856 |
| 3.520 | 43.933 | .61270 | 6.324 | .4390 | -.001029 |
| 3.840 | 45.835 | .58596 | 5.578 | .4903 | -.001204 |
| 4.160 | 47.512 | .56067 | 4.917 | .5429 | -.001374 |
| 4.480 | 48.990 | .53682 | 4.335 | .5965 | -.001529 |
| 4.800 | 50.294 | .51437 | 3.827 | .6511 | -.001659 |
| 5.120 | 51.447 | .49327 | 3.390 | .7067 | -.001753 |
| 5.440 | 52.471 | .47350 | 3.020 | .7631 | -.001800 |
| 5.760 | 53.387 | .45500 | 2.715 | .8204 | -.001790 |
| 6.080 | 54.215 | .43774 | 2.474 | .8787 | -.001716 |
| 6.400 | 54.977 | .42170 | 2.298 | .9382 | -.001572 |
| 6.720 | 55.693 | .40685 | 2.188 | .9991 | -.001360 |
| 7.040 | 56.384 | .39317 | 2.142 | 1.0617 | -.001082 |
| 7.360 | 57.070 | .38065 | 2.153 | 1.1263 | -.000744 |
| 7.680 | 57.767 | .36924 | 2.206 | 1.1931 | -.000352 |
| 8.000 | 58.484 | .35888 | 2.283 | 1.2626 | .000088 |
| 8.320 | 59.229 | .34947 | 2.376 | 1.3349 | .000574 |
| 8.640 | 60.008 | .34095 | 2.496 | 1.4104 | .001104 |
| 8.960 | 60.831 | .33329 | 2.658 | 1.4895 | .001670 |
| 9.280 | 61.715 | .32647 | 2.877 | 1.5728 | .002263 |
| 9.600 | 62.680 | .32052 | 3.170 | 1.6606 | .002870 |
| 9.920 | 63.754 | .31549 | 3.555 | 1.7537 | .003475 |
| 10.240 | 64.968 | .31145 | 4.054 | 1.8528 | .004060 |
| 10.560 | 66.363 | .30850 | 4.690 | 1.9584 | .004610 |
| 10.880 | 67.986 | .30675 | 5.489 | 2.0714 | .005109 |
| 11.200 | 69.896 | .30636 | 6.481 | 2.1926 | .005546 |
| 11.520 | 72.158 | .30749 | 7.698 | 2.3226 | .005913 |
| 11.840 | 74.850 | .31034 | 9.175 | 2.4624 | .006209 |
| 12.160 | 78.062 | .31514 | 10.951 | 2.6127 | .006431 |
| 12.480 | 81.895 | .32214 | 13.069 | 2.7742 | .006585 |
| 12.800 | 86.468 | .33162 | 15.575 | 2.9478 | .006675 |
| 13.120 | 91.910 | .34390 | 18.518 | 3.1341 | .006707 |
| 13.440 | 98.371 | .35931 | 21.950 | 3.3339 | .006686 |
| 13.760 | 106.016 | .37823 | 25.927 | 3.5479 | .006620 |
| 14.080 | 115.029 | .40105 | 30.509 | 3.7770 | .006513 |
| 14.400 | 125.613 | .42822 | 35.759 | 4.0218 | .006371 |
| 14.720 | 137.993 | .46020 | 41.745 | 4.2833 | .006197 |
| 15.040 | 152.416 | .49749 | 48.537 | 4.5622 | .005994 |
| 15.360 | 169.151 | .54061 | 56.211 | 4.8593 | .005765 |
| 15.680 | 188.493 | .59013 | 64.847 | 5.1756 | .005513 |
| 16.000 | 210.765 | .64666 | 74.530 | 5.5120 | .005239 |
| 16.320 | 236.314 | .71083 | 85.351 | 5.8695 | .004944 |
| 16.640 | 265.521 | .78333 | 97.407 | 6.2492 | .004629 |
| 16.960 | 298.797 | .86487 | 110.803 | 6.6522 | .004295 |
| 17.280 | 336.590 | .95621 | 125.649 | 7.0796 | .003941 |
| 17.600 | 379.381 | 1.05818 | 142.067 | 7.5329 | .003568 |

Table 12. Continued.

NF3 ISOTHERM AT 250.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 6.357 | .95573 | 19.046 | .0279 | -.000005 |
| .640 | 12.209 | .91774 | 17.540 | .0583 | -.000023 |
| .960 | 17.588 | .88142 | 16.090 | .0913 | -.000056 |
| 1.280 | 22.512 | .84611 | 14.690 | .1268 | -.000105 |
| 1.600 | 26.997 | .81174 | 13.351 | .1646 | -.000172 |
| 1.920 | 31.065 | .77838 | 12.087 | .2048 | -.000256 |
| 2.240 | 34.742 | .74615 | 10.908 | .2470 | -.000355 |
| 2.560 | 38.056 | .71516 | 9.820 | .2913 | -.000468 |
| 2.880 | 41.036 | .68549 | 8.824 | .3373 | -.000592 |
| 3.200 | 43.713 | .65718 | 7.922 | .3851 | -.000724 |
| 3.520 | 46.116 | .63028 | 7.110 | .4343 | -.000858 |
| 3.840 | 48.273 | .60478 | 6.384 | .4849 | -.000989 |
| 4.160 | 50.211 | .58067 | 5.741 | .5367 | -.001112 |
| 4.480 | 51.955 | .55793 | 5.176 | .5897 | -.001218 |
| 4.800 | 53.531 | .53652 | 4.684 | .6438 | -.001302 |
| 5.120 | 54.960 | .51642 | 4.262 | .6990 | -.001356 |
| 5.440 | 56.266 | .49759 | 3.908 | .7552 | -.001374 |
| 5.760 | 57.468 | .47999 | 3.620 | .8126 | -.001350 |
| 6.080 | 58.589 | .46360 | 3.398 | .8713 | -.001282 |
| 6.400 | 59.651 | .44839 | 3.245 | .9315 | -.001168 |
| 6.720 | 60.674 | .43436 | 3.161 | .9933 | -.001007 |
| 7.040 | 61.681 | .42150 | 3.145 | 1.0571 | -.000802 |
| 7.360 | 62.693 | .40979 | 3.191 | 1.1231 | -.000556 |
| 7.680 | 63.728 | .39920 | 3.284 | 1.1916 | -.000273 |
| 8.000 | 64.798 | .38967 | 3.406 | 1.2629 | .000045 |
| 8.320 | 65.910 | .38111 | 3.548 | 1.3372 | .000397 |
| 8.640 | 67.072 | .37347 | 3.723 | 1.4150 | .000781 |
| 8.960 | 68.297 | .36671 | 3.946 | 1.4965 | .001193 |
| 9.280 | 69.604 | .36084 | 4.233 | 1.5823 | .001628 |
| 9.600 | 71.016 | .35588 | 4.603 | 1.6728 | .002078 |
| 9.920 | 72.561 | .35190 | 5.075 | 1.7685 | .002535 |
| 10.240 | 74.277 | .34896 | 5.671 | 1.8701 | .002988 |
| 10.560 | 76.207 | .34718 | 6.415 | 1.9782 | .003427 |
| 10.880 | 78.401 | .34667 | 7.334 | 2.0935 | .003842 |
| 11.200 | 80.922 | .34759 | 8.457 | 2.2167 | .004224 |
| 11.520 | 83.839 | .35012 | 9.817 | 2.3486 | .004563 |
| 11.840 | 87.234 | .35445 | 11.449 | 2.4898 | .004856 |
| 12.160 | 91.200 | .36081 | 13.393 | 2.6413 | .005099 |
| 12.480 | 95.843 | .36946 | 15.690 | 2.8037 | .005290 |
| 12.800 | 101.284 | .38068 | 18.388 | 2.9779 | .005429 |
| 13.120 | 107.659 | .39477 | 21.533 | 3.1645 | .005518 |
| 13.440 | 115.119 | .41207 | 25.180 | 3.3643 | .005560 |
| 13.760 | 123.834 | .43296 | 29.384 | 3.5782 | .005558 |
| 14.080 | 133.991 | .45782 | 34.206 | 3.8070 | .005516 |
| 14.400 | 145.798 | .48709 | 39.707 | 4.0513 | .005436 |
| 14.720 | 159.483 | .52123 | 45.957 | 4.3120 | .005321 |
| 15.040 | 175.298 | .56073 | 53.027 | 4.5900 | .005175 |
| 15.360 | 193.516 | .60611 | 60.992 | 4.8861 | .004999 |
| 15.680 | 214.437 | .65793 | 69.934 | 5.2013 | .004797 |
| 16.000 | 238.387 | .71678 | 79.938 | 5.5365 | .004569 |
| 16.320 | 265.721 | .78330 | 91.096 | 5.8926 | .004317 |
| 16.640 | 296.822 | .85816 | 103.507 | 6.2708 | .004043 |
| 16.960 | 332.110 | .94206 | 117.275 | 6.6722 | .003746 |
| 17.280 | 372.035 | 1.03577 | 132.513 | 7.0980 | .003427 |

Table 12. Continued.

NF3 ISOTHERM AT 260.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 6.636 | .95923 | 19.955 | .0278 | -.000004 |
| .640 | 12.791 | .92451 | 18.528 | .0581 | -.000019 |
| .960 | 18.499 | .89138 | 17.155 | .0908 | -.000047 |
| 1.280 | 23.775 | .85920 | 15.828 | .1258 | -.000088 |
| 1.600 | 28.635 | .82788 | 14.560 | .1631 | -.000141 |
| 1.920 | 33.101 | .79749 | 13.362 | .2025 | -.000206 |
| 2.240 | 37.196 | .76813 | 12.245 | .2439 | -.000282 |
| 2.560 | 40.947 | .73990 | 11.215 | .2871 | -.000366 |
| 2.880 | 44.383 | .71287 | 10.273 | .3322 | -.000456 |
| 3.200 | 47.531 | .68709 | 9.419 | .3788 | -.000548 |
| 3.520 | 50.420 | .66260 | 8.652 | .4269 | -.000639 |
| 3.840 | 53.077 | .63939 | 7.969 | .4764 | -.000725 |
| 4.160 | 55.528 | .61747 | 7.365 | .5273 | -.000801 |
| 4.480 | 57.799 | .59680 | 6.837 | .5795 | -.000864 |
| 4.800 | 59.912 | .57738 | 6.382 | .6330 | -.000910 |
| 5.120 | 61.891 | .55917 | 5.998 | .6878 | -.000936 |
| 5.440 | 63.758 | .54216 | 5.684 | .7440 | -.000937 |
| 5.760 | 65.536 | .52632 | 5.440 | .8016 | -.000914 |
| 6.080 | 67.247 | .51164 | 5.267 | .8609 | -.000862 |
| 6.400 | 68.915 | .49811 | 5.169 | .9220 | -.000784 |
| 6.720 | 70.563 | .48574 | 5.147 | .9851 | -.000678 |
| 7.040 | 72.217 | .47452 | 5.201 | 1.0505 | -.000545 |
| 7.360 | 73.900 | .46447 | 5.326 | 1.1185 | -.000388 |
| 7.680 | 75.632 | .45555 | 5.507 | 1.1892 | -.000207 |
| 8.000 | 77.428 | .44771 | 5.724 | 1.2631 | -.000003 |
| 8.320 | 79.299 | .44089 | 5.972 | 1.3402 | .000221 |
| 8.640 | 81.255 | .43504 | 6.263 | 1.4210 | .000467 |
| 8.960 | 83.313 | .43013 | 6.614 | 1.5059 | .000731 |
| 9.280 | 85.496 | .42618 | 7.044 | 1.5951 | .001012 |
| 9.600 | 87.832 | .42322 | 7.571 | 1.6892 | .001306 |
| 9.920 | 90.355 | .42134 | 8.217 | 1.7886 | .001608 |
| 10.240 | 93.106 | .42060 | 9.006 | 1.8939 | .001914 |
| 10.560 | 96.136 | .42113 | 9.961 | 2.0057 | .002218 |
| 10.880 | 99.502 | .42305 | 11.113 | 2.1245 | .002515 |
| 11.200 | 103.272 | .42654 | 12.490 | 2.2510 | .002798 |
| 11.520 | 107.524 | .43176 | 14.127 | 2.3858 | .003062 |
| 11.840 | 112.345 | .43893 | 16.059 | 2.5298 | .003303 |
| 12.160 | 117.837 | .44827 | 18.327 | 2.6836 | .003517 |
| 12.480 | 124.114 | .46004 | 20.972 | 2.8479 | .003699 |
| 12.800 | 131.304 | .47452 | 24.040 | 3.0235 | .003848 |
| 13.120 | 139.550 | .49202 | 27.581 | 3.2112 | .003963 |
| 13.440 | 149.012 | .51288 | 31.647 | 3.4117 | .004043 |
| 13.760 | 159.867 | .53744 | 36.296 | 3.6259 | .004087 |
| 14.080 | 172.310 | .56611 | 41.587 | 3.8545 | .004098 |
| 14.400 | 186.557 | .59929 | 47.583 | 4.0984 | .004075 |
| 14.720 | 202.846 | .63745 | 54.354 | 4.3583 | .004020 |
| 15.040 | 221.434 | .68106 | 61.972 | 4.6352 | .003934 |
| 15.360 | 242.606 | .73064 | 70.513 | 4.9299 | .003820 |
| 15.680 | 266.670 | .78672 | 80.060 | 5.2434 | .003677 |
| 16.000 | 293.961 | .84989 | 90.700 | 5.5766 | .003507 |
| 16.320 | 324.845 | .92076 | 102.527 | 5.9305 | .003312 |
| 16.640 | 359.716 | .99999 | 115.641 | 6.3063 | .003092 |
| 16.960 | 399.003 | 1.08828 | 130.148 | 6.7050 | .002847 |

Table 12. Continued.

NF3 ISOTHERM AT 270.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 6.914 | .96242 | 20.862 | .0278 | -.000004 |
| .640 | 13.371 | .93064 | 19.508 | .0579 | -.000017 |
| .960 | 19.404 | .90039 | 18.208 | .0904 | -.000040 |
| 1.280 | 25.029 | .87102 | 16.951 | .1250 | -.000074 |
| 1.600 | 30.259 | .84244 | 15.750 | .1618 | -.000118 |
| 1.920 | 35.116 | .81470 | 14.615 | .2006 | -.000171 |
| 2.240 | 39.621 | .78792 | 13.557 | .2413 | -.000232 |
| 2.560 | 43.801 | .76216 | 12.582 | .2838 | -.000298 |
| 2.880 | 47.683 | .73751 | 11.692 | .3281 | -.000367 |
| 3.200 | 51.293 | .71402 | 10.887 | .3739 | -.000437 |
| 3.520 | 54.660 | .69171 | 10.166 | .4212 | -.000504 |
| 3.840 | 57.808 | .67059 | 9.527 | .4701 | -.000567 |
| 4.160 | 60.765 | .65067 | 8.965 | .5203 | -.000621 |
| 4.480 | 63.554 | .63193 | 8.480 | .5719 | -.000665 |
| 4.800 | 66.200 | .61435 | 8.069 | .6250 | -.000696 |
| 5.120 | 68.726 | .59793 | 7.730 | .6796 | -.000712 |
| 5.440 | 71.155 | .58265 | 7.464 | .7358 | -.000711 |
| 5.760 | 73.511 | .56850 | 7.272 | .7937 | -.000691 |
| 6.080 | 75.817 | .55547 | 7.157 | .8534 | -.000653 |
| 6.400 | 78.099 | .54359 | 7.122 | .9152 | -.000595 |
| 6.720 | 80.384 | .53284 | 7.170 | .9792 | -.000518 |
| 7.040 | 82.698 | .52326 | 7.304 | 1.0458 | -.000423 |
| 7.360 | 85.067 | .51485 | 7.516 | 1.1150 | -.000310 |
| 7.680 | 87.514 | .50760 | 7.791 | 1.1873 | -.000180 |
| 8.000 | 90.058 | .50146 | 8.112 | 1.2629 | -.000034 |
| 8.320 | 92.710 | .49637 | 8.471 | 1.3419 | .000127 |
| 8.640 | 95.485 | .49229 | 8.885 | 1.4248 | .000303 |
| 8.960 | 98.404 | .48922 | 9.370 | 1.5119 | .000494 |
| 9.280 | 101.492 | .48717 | 9.946 | 1.6035 | .000696 |
| 9.600 | 104.782 | .48620 | 10.634 | 1.7001 | .000908 |
| 9.920 | 108.312 | .48637 | 11.456 | 1.8021 | .001128 |
| 10.240 | 112.130 | .48778 | 12.437 | 1.9100 | .001353 |
| 10.560 | 116.292 | .49055 | 13.603 | 2.0244 | .001578 |
| 10.880 | 120.859 | .49482 | 14.983 | 2.1457 | .001801 |
| 11.200 | 125.907 | .50076 | 16.610 | 2.2747 | .002017 |
| 11.520 | 131.519 | .50855 | 18.517 | 2.4119 | .002223 |
| 11.840 | 137.792 | .51841 | 20.741 | 2.5581 | .002415 |
| 12.160 | 144.832 | .53055 | 23.322 | 2.7138 | .002589 |
| 12.480 | 152.760 | .54525 | 26.304 | 2.8798 | .002743 |
| 12.800 | 161.714 | .56278 | 29.733 | 3.0568 | .002873 |
| 13.120 | 171.842 | .58344 | 33.658 | 3.2456 | .002979 |
| 13.440 | 183.314 | .60757 | 38.133 | 3.4469 | .003058 |
| 13.760 | 196.312 | .63552 | 43.215 | 3.6616 | .003110 |
| 14.080 | 211.042 | .66768 | 48.964 | 3.8904 | .003135 |
| 14.400 | 227.728 | .70446 | 55.446 | 4.1341 | .003131 |
| 14.720 | 246.613 | .74629 | 62.728 | 4.3937 | .003100 |
| 15.040 | 267.967 | .79366 | 70.884 | 4.6698 | .003042 |
| 15.360 | 292.081 | .84705 | 79.993 | 4.9636 | .002956 |
| 15.680 | 319.273 | .90702 | 90.137 | 5.2758 | .002845 |
| 16.000 | 349.888 | .97411 | 101.405 | 5.6075 | .002708 |
| 16.320 | 384.302 | 1.04894 | 113.893 | 5.9597 | .002546 |

Table 12. Continued.

NF3 ISOTHERM AT 280.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 7.191 | .96532 | 21.766 | .0278 | -.000003 |
| .640 | 13.949 | .93622 | 20.484 | .0578 | -.000015 |
| .960 | 20.306 | .90857 | 19.252 | .0900 | -.000035 |
| 1.280 | 26.275 | .88174 | 18.062 | .1243 | -.000064 |
| 1.600 | 31.871 | .85563 | 16.924 | .1607 | -.000101 |
| 1.920 | 37.114 | .83030 | 15.850 | .1990 | -.000145 |
| 2.240 | 42.023 | .80584 | 14.850 | .2392 | -.000195 |
| 2.560 | 46.626 | .78233 | 13.928 | .2811 | -.000249 |
| 2.880 | 50.946 | .75985 | 13.089 | .3247 | -.000304 |
| 3.200 | 55.012 | .73843 | 12.334 | .3699 | -.000360 |
| 3.520 | 58.849 | .71812 | 11.660 | .4167 | -.000413 |
| 3.840 | 62.483 | .69893 | 11.066 | .4649 | -.000462 |
| 4.160 | 65.939 | .68086 | 10.550 | .5147 | -.000504 |
| 4.480 | 69.243 | .66390 | 10.111 | .5660 | -.000537 |
| 4.800 | 72.418 | .64806 | 9.748 | .6188 | -.000560 |
| 5.120 | 75.489 | .63332 | 9.459 | .6733 | -.000572 |
| 5.440 | 78.480 | .61968 | 9.247 | .7295 | -.000571 |
| 5.760 | 81.416 | .60714 | 9.113 | .7875 | -.000555 |
| 6.080 | 84.321 | .59572 | 9.061 | .8476 | -.000526 |
| 6.400 | 87.224 | .58541 | 9.096 | .9099 | -.000482 |
| 6.720 | 90.152 | .57625 | 9.221 | .9746 | -.000424 |
| 7.040 | 93.135 | .56826 | 9.439 | 1.0419 | -.000351 |
| 7.360 | 96.202 | .56145 | 9.743 | 1.1122 | -.000266 |
| 7.680 | 99.379 | .55583 | 10.119 | 1.1856 | -.000168 |
| 8.000 | 102.684 | .55134 | 10.548 | 1.2624 | -.000057 |
| 8.320 | 106.134 | .54795 | 11.024 | 1.3429 | .000065 |
| 8.640 | 109.747 | .54561 | 11.565 | 1.4273 | .000199 |
| 8.960 | 113.545 | .54433 | 12.188 | 1.5160 | .000344 |
| 9.280 | 117.558 | .54414 | 12.915 | 1.6094 | .000498 |
| 9.600 | 121.823 | .54509 | 13.766 | 1.7078 | .000660 |
| 9.920 | 126.384 | .54725 | 14.766 | 1.8118 | .000828 |
| 10.240 | 131.292 | .55074 | 15.939 | 1.9217 | .001000 |
| 10.560 | 136.607 | .55567 | 17.315 | 2.0380 | .001174 |
| 10.880 | 142.398 | .56219 | 18.923 | 2.1613 | .001347 |
| 11.200 | 148.746 | .57047 | 20.796 | 2.2922 | .001516 |
| 11.520 | 155.740 | .58070 | 22.969 | 2.4313 | .001679 |
| 11.840 | 163.482 | .59310 | 25.480 | 2.5791 | .001832 |
| 12.160 | 172.087 | .60788 | 28.369 | 2.7364 | .001972 |
| 12.480 | 181.683 | .62533 | 31.681 | 2.9038 | .002098 |
| 12.800 | 192.413 | .64570 | 35.462 | 3.0820 | .002207 |
| 13.120 | 204.435 | .66931 | 39.764 | 3.2718 | .002297 |
| 13.440 | 217.923 | .69648 | 44.639 | 3.4739 | .002366 |
| 13.760 | 233.071 | .72757 | 50.146 | 3.6890 | .002414 |
| 14.080 | 250.091 | .76296 | 56.345 | 3.9181 | .002439 |
| 14.400 | 269.213 | .80304 | 63.303 | 4.1618 | .002440 |
| 14.720 | 290.693 | .84827 | 71.087 | 4.4211 | .002417 |
| 15.040 | 314.805 | .89908 | 79.774 | 4.6968 | .002371 |
| 15.360 | 341.852 | .95599 | 89.441 | 4.9897 | .002301 |
| 15.680 | 372.161 | 1.01951 | 100.174 | 5.3009 | .002207 |

Table 12. Continued.

NF3 ISOTHERM AT 300.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 7.746 | .97042 | 23.567 | .0277 | -.000003 |
| .640 | 15.102 | .94600 | 22.420 | .0575 | -.000012 |
| .960 | 22.099 | .92288 | 21.319 | .0894 | -.000028 |
| 1.280 | 28.750 | .90046 | 20.255 | .1232 | -.000050 |
| 1.600 | 35.067 | .87866 | 19.237 | .1589 | -.000077 |
| 1.920 | 41.068 | .85751 | 18.278 | .1965 | -.000109 |
| 2.240 | 46.772 | .83711 | 17.387 | .2358 | -.000145 |
| 2.560 | 52.204 | .81753 | 16.572 | .2769 | -.000184 |
| 2.880 | 57.386 | .79884 | 15.834 | .3195 | -.000223 |
| 3.200 | 62.346 | .78109 | 15.177 | .3638 | -.000261 |
| 3.520 | 67.108 | .76432 | 14.601 | .4097 | -.000298 |
| 3.840 | 71.699 | .74856 | 14.104 | .4571 | -.000331 |
| 4.160 | 76.143 | .73381 | 13.686 | .5062 | -.000360 |
| 4.480 | 80.467 | .72008 | 13.348 | .5569 | -.000383 |
| 4.800 | 84.695 | .70739 | 13.090 | .6094 | -.000399 |
| 5.120 | 88.853 | .69574 | 12.913 | .6637 | -.000407 |
| 5.440 | 92.968 | .68514 | 12.820 | .7199 | -.000407 |
| 5.760 | 97.067 | .67560 | 12.814 | .7781 | -.000398 |
| 6.080 | 101.179 | .66716 | 12.902 | .8387 | -.000381 |
| 6.400 | 105.335 | .65983 | 13.089 | .9017 | -.000354 |
| 6.720 | 109.567 | .65366 | 13.381 | .9673 | -.000318 |
| 7.040 | 113.910 | .64868 | 13.779 | 1.0358 | -.000273 |
| 7.360 | 118.397 | .64492 | 14.279 | 1.1074 | -.000220 |
| 7.680 | 123.058 | .64238 | 14.867 | 1.1824 | -.000158 |
| 8.000 | 127.919 | .64104 | 15.522 | 1.2609 | -.000089 |
| 8.320 | 132.999 | .64087 | 16.242 | 1.3433 | -.000012 |
| 8.640 | 138.323 | .64183 | 17.047 | 1.4299 | .000072 |
| 8.960 | 143.920 | .64395 | 17.955 | 1.5209 | .000163 |
| 9.280 | 149.827 | .64727 | 18.990 | 1.6167 | .000259 |
| 9.600 | 156.089 | .65184 | 20.174 | 1.7178 | .000362 |
| 9.920 | 162.757 | .65777 | 21.534 | 1.8244 | .000468 |
| 10.240 | 169.893 | .66515 | 23.097 | 1.9370 | .000577 |
| 10.560 | 177.564 | .67412 | 24.893 | 2.0561 | .000687 |
| 10.880 | 185.852 | .68483 | 26.954 | 2.1822 | .000798 |
| 11.200 | 194.847 | .69746 | 29.315 | 2.3158 | .000906 |
| 11.520 | 204.650 | .71220 | 32.013 | 2.4575 | .001011 |
| 11.840 | 215.375 | .72927 | 35.087 | 2.6078 | .001110 |
| 12.160 | 227.150 | .74890 | 38.581 | 2.7674 | .001202 |
| 12.480 | 240.116 | .77135 | 42.539 | 2.9368 | .001285 |
| 12.800 | 254.430 | .79689 | 47.010 | 3.1168 | .001357 |
| 13.120 | 270.263 | .82584 | 52.046 | 3.3081 | .001416 |
| 13.440 | 287.806 | .85850 | 57.703 | 3.5114 | .001462 |
| 13.760 | 307.265 | .89524 | 64.040 | 3.7273 | .001492 |
| 14.080 | 328.870 | .93641 | 71.118 | 3.9568 | .001506 |
| 14.400 | 352.867 | .98241 | 79.006 | 4.2005 | .001503 |
| 14.720 | 379.528 | 1.03366 | 87.775 | 4.4593 | .001482 |

Table 12. Continued.

NF3 ISOTHERM AT 320.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 8.299 | .97475 | 25.361 | .0276 | -.000002 |
| .640 | 16.249 | .95427 | 24.340 | .0573 | -.000010 |
| .960 | 23.881 | .93496 | 23.362 | .0889 | -.000022 |
| 1.280 | 31.204 | .91626 | 22.415 | .1223 | -.000040 |
| 1.600 | 38.231 | .89808 | 21.511 | .1576 | -.000062 |
| 1.920 | 44.977 | .88046 | 20.662 | .1946 | -.000087 |
| 2.240 | 51.462 | .86348 | 19.878 | .2333 | -.000114 |
| 2.560 | 57.707 | .84723 | 19.166 | .2736 | -.000143 |
| 2.880 | 63.736 | .83178 | 18.530 | .3156 | -.000173 |
| 3.200 | 69.575 | .81717 | 17.973 | .3592 | -.000202 |
| 3.520 | 75.248 | .80346 | 17.497 | .4045 | -.000230 |
| 3.840 | 80.781 | .79067 | 17.102 | .4513 | -.000255 |
| 4.160 | 86.202 | .77882 | 16.790 | .4999 | -.000277 |
| 4.480 | 91.536 | .76794 | 16.561 | .5502 | -.000294 |
| 4.800 | 96.810 | .75804 | 16.417 | .6024 | -.000307 |
| 5.120 | 102.052 | .74914 | 16.361 | .6565 | -.000314 |
| 5.440 | 107.291 | .74127 | 16.398 | .7127 | -.000316 |
| 5.760 | 112.557 | .73445 | 16.533 | .7711 | -.000311 |
| 6.080 | 117.883 | .72872 | 16.772 | .8319 | -.000301 |
| 6.400 | 123.303 | .72411 | 17.122 | .8953 | -.000284 |
| 6.720 | 128.853 | .72068 | 17.591 | .9615 | -.000261 |
| 7.040 | 134.574 | .71846 | 18.182 | 1.0308 | -.000232 |
| 7.360 | 140.502 | .71750 | 18.888 | 1.1032 | -.000197 |
| 7.680 | 146.673 | .71780 | 19.697 | 1.1792 | -.000157 |
| 8.000 | 153.117 | .71936 | 20.589 | 1.2589 | -.000111 |
| 8.320 | 159.859 | .72215 | 21.563 | 1.3426 | -.000060 |
| 8.640 | 166.929 | .72616 | 22.640 | 1.4305 | -.000004 |
| 8.960 | 174.362 | .73141 | 23.842 | 1.5230 | .000057 |
| 9.280 | 182.204 | .73794 | 25.192 | 1.6204 | .000121 |
| 9.600 | 190.504 | .74584 | 26.715 | 1.7231 | .000189 |
| 9.920 | 199.323 | .75520 | 28.440 | 1.8315 | .000260 |
| 10.240 | 208.730 | .76612 | 30.395 | 1.9459 | .000333 |
| 10.560 | 218.803 | .77876 | 32.611 | 2.0668 | .000406 |
| 10.880 | 229.633 | .79327 | 35.124 | 2.1947 | .000479 |
| 11.200 | 241.318 | .80982 | 37.970 | 2.3301 | .000551 |
| 11.520 | 253.973 | .82861 | 41.187 | 2.4735 | .000620 |
| 11.840 | 267.722 | .84986 | 44.816 | 2.6254 | .000685 |
| 12.160 | 282.704 | .87380 | 48.903 | 2.7865 | .000745 |
| 12.480 | 299.074 | .90069 | 53.495 | 2.9573 | .000798 |
| 12.800 | 317.000 | .93081 | 58.641 | 3.1385 | .000844 |
| 13.120 | 336.669 | .96446 | 64.395 | 3.3307 | .000880 |
| 13.440 | 358.284 | 1.00194 | 70.815 | 3.5346 | .000905 |
| 13.760 | 382.068 | 1.04360 | 77.961 | 3.7510 | .000919 |

Table 12. Continued.

NF3 ISOTHERM AT 350.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 9.127 | .98013 | 28.041 | .0276 | -.000002 |
| .640 | 17.964 | .96452 | 27.198 | .0570 | -.000008 |
| .960 | 26.537 | .94991 | 26.391 | .0883 | -.000017 |
| 1.280 | 34.857 | .93578 | 25.612 | .1213 | -.000030 |
| 1.600 | 42.933 | .92207 | 24.870 | .1560 | -.000046 |
| 1.920 | 50.779 | .90882 | 24.178 | .1923 | -.000065 |
| 2.240 | 58.413 | .89611 | 23.549 | .2303 | -.000085 |
| 2.560 | 65.858 | .88402 | 22.989 | .2699 | -.000106 |
| 2.880 | 73.135 | .87262 | 22.505 | .3112 | -.000127 |
| 3.200 | 80.270 | .86198 | 22.102 | .3540 | -.000148 |
| 3.520 | 87.289 | .85214 | 21.781 | .3986 | -.000168 |
| 3.840 | 94.219 | .84314 | 21.546 | .4448 | -.000187 |
| 4.160 | 101.087 | .83503 | 21.399 | .4928 | -.000203 |
| 4.480 | 107.924 | .82782 | 21.344 | .5427 | -.000216 |
| 4.800 | 114.758 | .82155 | 21.383 | .5945 | -.000227 |
| 5.120 | 121.620 | .81626 | 21.523 | .6484 | -.000234 |
| 5.440 | 128.543 | .81198 | 21.768 | .7045 | -.000238 |
| 5.760 | 135.563 | .80875 | 22.126 | .7630 | -.000237 |
| 6.080 | 142.717 | .80662 | 22.606 | .8240 | -.000233 |
| 6.400 | 150.045 | .80563 | 23.217 | .8878 | -.000225 |
| 6.720 | 157.591 | .80586 | 23.966 | .9545 | -.000213 |
| 7.040 | 165.399 | .80734 | 24.857 | 1.0244 | -.000198 |
| 7.360 | 173.514 | .81013 | 25.887 | 1.0976 | -.000179 |
| 7.680 | 181.979 | .81425 | 27.040 | 1.1745 | -.000157 |
| 8.000 | 190.831 | .81970 | 28.299 | 1.2552 | -.000131 |
| 8.320 | 200.102 | .82646 | 29.665 | 1.3401 | -.000103 |
| 8.640 | 209.830 | .83455 | 31.162 | 1.4293 | -.000071 |
| 8.960 | 220.062 | .84398 | 32.813 | 1.5232 | -.000037 |
| 9.280 | 230.850 | .85483 | 34.644 | 1.6221 | -.000001 |
| 9.600 | 242.257 | .86716 | 36.683 | 1.7263 | .000038 |
| 9.920 | 254.353 | .88109 | 38.960 | 1.8363 | .000077 |
| 10.240 | 267.219 | .89673 | 41.505 | 1.9523 | .000118 |
| 10.560 | 280.948 | .91424 | 44.354 | 2.0749 | .000158 |
| 10.880 | 295.642 | .93376 | 47.543 | 2.2045 | .000198 |
| 11.200 | 311.416 | .95547 | 51.110 | 2.3415 | .000237 |
| 11.520 | 328.398 | .97959 | 55.098 | 2.4864 | .000274 |
| 11.840 | 346.728 | 1.00631 | 59.550 | 2.6398 | .000307 |
| 12.160 | 366.564 | 1.03589 | 64.514 | 2.8021 | .000337 |
| 12.480 | 388.077 | 1.06856 | 70.038 | 2.9741 | .000361 |

Table 12. Continued.

NF3 ISOTHERM AT 400.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 10.504 | .98696 | 32.484 | .0275 | -.000001 |
| .640 | 20.806 | .97749 | 31.913 | .0567 | -.000006 |
| .960 | 30.931 | .96879 | 31.372 | .0875 | -.000012 |
| 1.280 | 40.886 | .96044 | 30.851 | .1200 | -.000021 |
| 1.600 | 50.679 | .95239 | 30.363 | .1540 | -.000032 |
| 1.920 | 60.323 | .94469 | 29.922 | .1896 | -.000045 |
| 2.240 | 69.836 | .93742 | 29.542 | .2268 | -.000058 |
| 2.560 | 79.238 | .93067 | 29.233 | .2656 | -.000072 |
| 2.880 | 88.554 | .92452 | 29.003 | .3059 | -.000087 |
| 3.200 | 97.809 | .91904 | 28.859 | .3479 | -.000101 |
| 3.520 | 107.033 | .91428 | 28.805 | .3917 | -.000115 |
| 3.840 | 116.255 | .91030 | 28.848 | .4371 | -.000128 |
| 4.160 | 125.507 | .90715 | 28.991 | .4845 | -.000139 |
| 4.480 | 134.821 | .90486 | 29.242 | .5337 | -.000150 |
| 4.800 | 144.234 | .90350 | 29.606 | .5851 | -.000159 |
| 5.120 | 153.782 | .90311 | 30.091 | .6386 | -.000166 |
| 5.440 | 163.506 | .90373 | 30.705 | .6945 | -.000171 |
| 5.760 | 173.448 | .90542 | 31.459 | .7529 | -.000174 |
| 6.080 | 183.656 | .90825 | 32.364 | .8140 | -.000176 |
| 6.400 | 194.178 | .91227 | 33.429 | .8779 | -.000176 |
| 6.720 | 205.069 | .91756 | 34.667 | .9450 | -.000173 |
| 7.040 | 216.384 | .92418 | 36.081 | 1.0153 | -.000169 |
| 7.360 | 228.179 | .93218 | 37.669 | 1.0891 | -.000164 |
| 7.680 | 240.509 | .94161 | 39.416 | 1.1667 | -.000157 |
| 8.000 | 253.420 | .95248 | 41.304 | 1.2482 | -.000148 |
| 8.320 | 266.959 | .96477 | 43.341 | 1.3339 | -.000138 |
| 8.640 | 281.177 | .97852 | 45.553 | 1.4241 | -.000127 |
| 8.960 | 296.135 | .99377 | 47.968 | 1.5191 | -.000115 |
| 9.280 | 311.901 | 1.01059 | 50.613 | 1.6192 | -.000102 |
| 9.600 | 328.555 | 1.02906 | 53.521 | 1.7246 | -.000089 |
| 9.920 | 346.186 | 1.04931 | 56.723 | 1.8358 | -.000075 |
| 10.240 | 364.893 | 1.07144 | 60.255 | 1.9531 | -.000062 |
| 10.560 | 384.789 | 1.09563 | 64.156 | 2.0770 | -.000049 |

Table 12. Continued.

NF3 ISOTHERM AT 450.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 11.877 | .99198 | 36.904 | .0274 | -.000001 |
| .640 | 23.634 | .98699 | 36.586 | .0564 | -.000004 |
| .960 | 35.294 | .98260 | 36.290 | .0870 | -.000009 |
| 1.280 | 46.861 | .97849 | 36.011 | .1191 | -.000016 |
| 1.600 | 58.344 | .97460 | 35.763 | .1526 | -.000024 |
| 1.920 | 69.754 | .97101 | 35.563 | .1877 | -.000033 |
| 2.240 | 81.111 | .96779 | 35.426 | .2243 | -.000043 |
| 2.560 | 92.435 | .96504 | 35.364 | .2625 | -.000054 |
| 2.880 | 103.753 | .96285 | 35.387 | .3022 | -.000065 |
| 3.200 | 115.093 | .96128 | 35.505 | .3436 | -.000075 |
| 3.520 | 126.486 | .96040 | 35.723 | .3867 | -.000086 |
| 3.840 | 137.967 | .96028 | 36.051 | .4316 | -.000096 |
| 4.160 | 149.572 | .96096 | 36.496 | .4784 | -.000106 |
| 4.480 | 161.338 | .96252 | 37.064 | .5272 | -.000115 |
| 4.800 | 173.307 | .96500 | 37.766 | .5781 | -.000123 |
| 5.120 | 185.523 | .96846 | 38.611 | .6313 | -.000130 |
| 5.440 | 198.034 | .97296 | 39.610 | .6869 | -.000136 |
| 5.760 | 210.891 | .97856 | 40.774 | .7451 | -.000141 |
| 6.080 | 224.149 | .98534 | 42.118 | .8060 | -.000146 |
| 6.400 | 237.867 | .99336 | 43.655 | .8699 | -.000149 |
| 6.720 | 252.110 | 1.00270 | 45.395 | .9369 | -.000151 |
| 7.040 | 266.943 | 1.01344 | 47.346 | 1.0072 | -.000153 |
| 7.360 | 282.434 | 1.02563 | 49.505 | 1.0812 | -.000154 |
| 7.680 | 298.647 | 1.03932 | 51.858 | 1.1589 | -.000154 |
| 8.000 | 315.642 | 1.05452 | 54.388 | 1.2406 | -.000154 |
| 8.320 | 333.475 | 1.07125 | 57.106 | 1.3266 | -.000153 |
| 8.640 | 352.213 | 1.08954 | 60.043 | 1.4171 | -.000152 |
| 8.960 | 371.929 | 1.10944 | 63.228 | 1.5124 | -.000150 |
| 9.280 | 392.708 | 1.13103 | 66.693 | 1.6127 | -.000149 |

Table 12. Continued.

NF3 ISOTHERM AT 500.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 13.247 | .99579 | 41.308 | .0274 | -.000001 |
| .640 | 26.451 | .99418 | 41.225 | .0563 | -.000003 |
| .960 | 39.633 | .99307 | 41.160 | .0866 | -.000007 |
| 1.280 | 52.796 | .99216 | 41.111 | .1183 | -.000013 |
| 1.600 | 65.948 | .99145 | 41.094 | .1516 | -.000019 |
| 1.920 | 79.101 | .99101 | 41.127 | .1862 | -.000026 |
| 2.240 | 92.276 | .99091 | 41.228 | .2224 | -.000034 |
| 2.560 | 105.496 | .99126 | 41.410 | .2601 | -.000042 |
| 2.880 | 118.788 | .99215 | 41.685 | .2993 | -.000051 |
| 3.200 | 132.186 | .99364 | 42.065 | .3402 | -.000060 |
| 3.520 | 145.722 | .99581 | 42.559 | .3829 | -.000068 |
| 3.840 | 159.437 | .99874 | 43.177 | .4273 | -.000077 |
| 4.160 | 173.370 | 1.00247 | 43.927 | .4737 | -.000085 |
| 4.480 | 187.565 | 1.00709 | 44.820 | .5221 | -.000093 |
| 4.800 | 202.071 | 1.01264 | 45.866 | .5726 | -.000101 |
| 5.120 | 216.937 | 1.01920 | 47.079 | .6254 | -.000108 |
| 5.440 | 232.220 | 1.02682 | 48.470 | .6807 | -.000114 |
| 5.760 | 247.978 | 1.03558 | 50.053 | .7386 | -.000120 |
| 6.080 | 264.276 | 1.04556 | 51.845 | .7993 | -.000126 |
| 6.400 | 281.183 | 1.05682 | 53.859 | .8629 | -.000131 |
| 6.720 | 298.772 | 1.06946 | 56.110 | .9297 | -.000136 |
| 7.040 | 317.119 | 1.08354 | 58.604 | .9999 | -.000141 |
| 7.360 | 336.304 | 1.09913 | 61.339 | 1.0737 | -.000145 |
| 7.680 | 356.401 | 1.11628 | 64.303 | 1.1513 | -.000149 |
| 8.000 | 377.480 | 1.13501 | 67.478 | 1.2329 | -.000153 |
| 8.320 | 399.611 | 1.15534 | 70.881 | 1.3188 | -.000158 |

NF3 ISOTHERM AT 600.00 K

| MOL/L | P,BAR | Z | DP/DD | DP/DT | D2P/DT2 |
|---|---|---|---|---|---|
| .320 | 15.982 | 1.00111 | 50.077 | .0273 | -.000001 |
| .640 | 32.062 | 1.00421 | 50.431 | .0560 | -.000002 |
| .960 | 48.259 | 1.00767 | 50.799 | .0860 | -.000005 |
| 1.280 | 64.575 | 1.01128 | 51.184 | .1173 | -.000008 |
| 1.600 | 81.021 | 1.01505 | 51.607 | .1500 | -.000013 |
| 1.920 | 97.610 | 1.01907 | 52.089 | .1841 | -.000018 |
| 2.240 | 114.366 | 1.02344 | 52.652 | .2196 | -.000023 |
| 2.560 | 131.318 | 1.02824 | 53.313 | .2566 | -.000029 |
| 2.880 | 148.499 | 1.03358 | 54.089 | .2951 | -.000035 |
| 3.200 | 165.948 | 1.03953 | 54.992 | .3353 | -.000041 |
| 3.520 | 183.709 | 1.04617 | 56.038 | .3772 | -.000047 |
| 3.840 | 201.829 | 1.05357 | 57.238 | .4209 | -.000054 |
| 4.160 | 220.359 | 1.06182 | 58.605 | .4665 | -.000061 |
| 4.480 | 239.355 | 1.07097 | 60.154 | .5142 | -.000067 |
| 4.800 | 258.879 | 1.08110 | 61.899 | .5640 | -.000074 |
| 5.120 | 278.993 | 1.09229 | 63.855 | .6161 | -.000081 |
| 5.440 | 299.770 | 1.10459 | 66.040 | .6708 | -.000087 |
| 5.760 | 321.285 | 1.11810 | 68.470 | .7280 | -.000094 |
| 6.080 | 343.619 | 1.13289 | 71.164 | .7880 | -.000101 |
| 6.400 | 366.860 | 1.14904 | 74.142 | .8510 | -.000108 |
| 6.720 | 391.102 | 1.16663 | 77.418 | .9172 | -.000115 |

Table 13. The Joule-Thomson Inversion Locus. (Column DI is the initial density for the iteration.)

THE JOULE-THOMSON INVERSION LOCUS FOR NITROGEN TRIFLUORIDE.

| T,K | DI | MOL/L | P,BAR | T,K | DI | MOL/L | P,BAR |
|---|---|---|---|---|---|---|---|
| 190 | 19.228 | 18.171 | 15.48 | 450 | 11.065 | 11.059 | 532.62 |
| 200 | 18.823 | 17.836 | 65.09 | 460 | 10.832 | 10.812 | 531.93 |
| 210 | 18.428 | 17.510 | 110.99 | 470 | 10.604 | 10.565 | 530.36 |
| 220 | 18.040 | 17.193 | 153.47 | 480 | 10.381 | 10.319 | 527.97 |
| 230 | 17.661 | 16.884 | 192.76 | 490 | 10.163 | 10.075 | 524.85 |
| 240 | 17.289 | 16.582 | 229.09 | 500 | 9.949 | 9.832 | 521.09 |
| 250 | 16.926 | 16.286 | 262.67 | 510 | 9.740 | 9.592 | 516.76 |
| 260 | 16.570 | 15.997 | 293.65 | 520 | 9.535 | 9.355 | 511.95 |
| 270 | 16.221 | 15.712 | 322.19 | 530 | 9.335 | 9.122 | 506.76 |
| 280 | 15.880 | 15.433 | 348.44 | 540 | 9.138 | 8.892 | 501.28 |
| 290 | 15.546 | 15.158 | 372.52 | 550 | 8.946 | 8.668 | 495.59 |
| 300 | 15.219 | 14.886 | 394.53 | 560 | 8.758 | 8.448 | 489.78 |
| 310 | 14.899 | 14.619 | 414.60 | 570 | 8.574 | 8.235 | 483.93 |
| 320 | 14.586 | 14.354 | 432.80 | 580 | 8.394 | 8.028 | 478.11 |
| 330 | 14.279 | 14.092 | 449.22 | 590 | 8.217 | 7.828 | 472.39 |
| 340 | 13.979 | 13.832 | 463.95 | 600 | 8.044 | 7.636 | 466.89 |
| 350 | 13.685 | 13.575 | 477.05 | 610 | 7.875 | 7.451 | 461.56 |
| 360 | 13.397 | 13.319 | 488.61 | 620 | 7.709 | 7.272 | 456.29 |
| 370 | 13.115 | 13.064 | 498.67 | 630 | 7.547 | 7.097 | 451.01 |
| 380 | 12.840 | 12.811 | 507.30 | 640 | 7.389 | 6.926 | 445.66 |
| 390 | 12.570 | 12.559 | 514.57 | 650 | 7.233 | 6.758 | 440.17 |
| 400 | 12.305 | 12.307 | 520.52 | 660 | 7.081 | 6.592 | 434.51 |
| 410 | 12.046 | 12.057 | 525.22 | 670 | 6.932 | 6.428 | 428.66 |
| 420 | 11.793 | 11.807 | 528.72 | 680 | 6.786 | 6.266 | 422.59 |
| 430 | 11.545 | 11.557 | 531.08 | 690 | 6.644 | 6.104 | 416.30 |
| 440 | 11.302 | 11.308 | 532.36 | 700 | 6.504 | 5.944 | 409.78 |

TABLE 14. Thermophysical Properties of Saturated Liquid

This table was computed along paths described in section 3.0. Column headings have the following interpretations--

| | | |
|---|---|---|
| DPS/DT | ≡ | $dP_\sigma/dT$, vapor pressure, |
| DDL/DT | ≡ | $d\rho_\ell/dT$, saturated liquid, |
| DP/DT | ≡ | $(\partial P/\partial T)$, single phase, |
| DP/DD | ≡ | $(\partial P/\partial \rho)$, single phase, |
| Q,VAP | ≡ | $\Delta H_{vap}$, heat of vaporization, |
| CV | ≡ | $C_v(\rho,T)$, |
| CS | ≡ | $C_\sigma(T)$, |
| CP | ≡ | $C_p(\rho,T)$, |
| W | ≡ | speed of sound. |

PROPERTIES OF SATURATED LIQUID NITROGEN TRIFLUORIDE.

| T<br>K | P<br>BAR | DEN<br>MOL/L | Z | V,LIQ<br>L/MOL | V,GAS<br>L/MOL | DPS/DT<br>BAR/K | DDL/DT<br>MOL/L/K | DP/DT<br>BAR/K | DP/DD<br>BAR-L/MOL |
|---|---|---|---|---|---|---|---|---|---|
| 66.350 | .1854E-05 | 26.320 | .00000 | .03799 | .2975E+07 | .7370E-06 | -.05454 | 45.429 | .8329E+03 |
| 70.000 | .7286E-05 | 26.120 | .00000 | .03828 | .7988E+06 | .2577E-05 | -.05494 | 43.099 | .7845E+03 |
| 75.000 | .3754E-04 | 25.844 | .00000 | .03869 | .1661E+06 | .1141E-04 | -.05550 | 40.163 | .7237E+03 |
| 80.000 | .1546E-03 | 25.565 | .00000 | .03912 | .4303E+05 | .4074E-04 | -.05608 | 37.484 | .6684E+03 |
| 85.000 | .5299E-03 | 25.283 | .00000 | .03955 | .1334E+05 | .1220E-03 | -.05668 | 35.027 | .6180E+03 |
| 90.000 | .1561E-02 | 24.998 | .00001 | .04000 | .4794E+04 | .3163E-03 | -.05731 | 32.763 | .5717E+03 |
| 95.000 | .4050E-02 | 24.710 | .00002 | .04047 | .1949E+04 | .7269E-03 | -.05797 | 30.668 | .5290E+03 |
| 100.000 | .9448E-02 | 24.419 | .00005 | .04095 | .8792E+03 | .1510E-02 | -.05866 | 28.723 | .4896E+03 |
| 105.000 | .2013E-01 | 24.123 | .00010 | .04145 | .4329E+03 | .2881E-02 | -.05939 | 26.911 | .4531E+03 |
| 110.000 | .3969E-01 | 23.825 | .00018 | .04197 | .2297E+03 | .5113E-02 | -.06017 | 25.218 | .4191E+03 |
| 115.000 | .7323E-01 | 23.522 | .00033 | .04251 | .1299E+03 | .8527E-02 | -.06100 | 23.633 | .3873E+03 |
| 120.000 | .1275E+00 | 23.215 | .00055 | .04308 | .7762E+02 | .1348E-01 | -.06189 | 22.145 | .3576E+03 |
| 125.000 | .2113E+00 | 22.903 | .00089 | .04366 | .4863E+02 | .2036E-01 | -.06285 | 20.744 | .3297E+03 |
| 130.000 | .3350E+00 | 22.586 | .00137 | .04428 | .3174E+02 | .2954E-01 | -.06390 | 19.424 | .3035E+03 |
| 135.000 | .5111E+00 | 22.264 | .00205 | .04492 | .2147E+02 | .4138E-01 | -.06504 | 18.178 | .2789E+03 |
| 140.000 | .7538E+00 | 21.935 | .00295 | .04559 | .1498E+02 | .5625E-01 | -.06629 | 16.998 | .2556E+03 |
| 144.094 | .1013E+01 | 21.662 | .00390 | .04616 | .1139E+02 | .7088E-01 | -.06741 | 16.078 | .2375E+03 |
| 150.000 | .1504E+01 | 21.258 | .00567 | .04704 | .7885E+01 | .9623E-01 | -.06921 | 14.819 | .2127E+03 |
| 155.000 | .2048E+01 | 20.908 | .00760 | .04783 | .5910E+01 | .1219E+00 | -.07092 | 13.810 | .1930E+03 |
| 160.000 | .2730E+01 | 20.549 | .00999 | .04866 | .4512E+01 | .1515E+00 | -.07285 | 12.849 | .1743E+03 |
| 165.000 | .3570E+01 | 20.179 | .01298 | .04956 | .3500E+01 | .1854E+00 | -.07503 | 11.932 | .1565E+03 |
| 170.000 | .4591E+01 | 19.798 | .01640 | .05051 | .2753E+01 | .2236E+00 | -.07752 | 11.056 | .1397E+03 |
| 175.000 | .5813E+01 | 19.403 | .02059 | .05154 | .2192E+01 | .2663E+00 | -.08039 | 10.218 | .1238E+03 |
| 180.000 | .7261E+01 | 18.993 | .02554 | .05265 | .1764E+01 | .3135E+00 | -.08372 | 9.415 | .1087E+03 |
| 185.000 | .8956E+01 | 18.565 | .03136 | .05386 | .1432E+01 | .3655E+00 | -.08764 | 8.643 | .9445E+02 |
| 190.000 | .1092E+02 | 18.116 | .03817 | .05520 | .1171E+01 | .4224E+00 | -.09234 | 7.900 | .8098E+02 |
| 195.000 | .1319E+02 | 17.640 | .04611 | .05669 | .9626E+00 | .4843E+00 | -.09805 | 7.183 | .6832E+02 |
| 200.000 | .1578E+02 | 17.133 | .05537 | .05837 | .7946E+00 | .5516E+00 | -.10519 | 6.488 | .5644E+02 |
| 205.000 | .1871E+02 | 16.585 | .06620 | .06030 | .6570E+00 | .6247E+00 | -.11437 | 5.813 | .4536E+02 |
| 210.000 | .2203E+02 | 15.984 | .07895 | .06256 | .5427E+00 | .7040E+00 | -.12669 | 5.152 | .3511E+02 |
| 215.000 | .2577E+02 | 15.309 | .09415 | .06532 | .4463E+00 | .7906E+00 | -.14427 | 4.499 | .2570E+02 |
| 220.000 | .2995E+02 | 14.525 | .11274 | .06885 | .3633E+00 | .8859E+00 | -.17188 | 3.845 | .1722E+02 |
| 225.000 | .3464E+02 | 13.553 | .13665 | .07379 | .2896E+00 | .9925E+00 | -.22328 | 3.172 | .9761E+01 |
| 230.000 | .3991E+02 | 12.155 | .17168 | .08227 | .2195E+00 | .1116E+01 | -.36776 | 2.424 | .3557E+01 |
| 232.000 | .4219E+02 | 11.255 | .19435 | .08885 | .1890E+00 | .1173E+01 | -.57086 | 2.055 | .1545E+01 |
| 233.000 | .4338E+02 | 10.554 | .21219 | .09475 | .1707E+00 | .1205E+01 | -.89310 | 1.819 | .6875E+00 |
| 234.000 | .4461E+02 | 7.920 | .28949 | .12626 | .1263E+00 | .1245E+01 | 0.00000 | 1.245 | 0. |

Table 14. Thermophysical Properties of Saturated Liquid.

PROPERTIES OF SATURATED LIQUID NITROGEN TRIFLUORIDE.

| T | P | Q,VAP | E | H | S | CV | CS | CP | W |
|---|---|---|---|---|---|---|---|---|---|
| K | BAR | J/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.350 | .1854E-05 | 14548.0 | .0 | .0 | 92.507 | 50.06 | 73.79 | 73.79 | 1314 |
| 70.000 | .7286E-05 | 14402.2 | 267.3 | 267.3 | 96.427 | 48.53 | 72.82 | 72.82 | 1287 |
| 75.000 | .3754E-04 | 14207.2 | 629.1 | 629.1 | 101.413 | 46.75 | 71.78 | 71.78 | 1250 |
| 80.000 | .1546E-03 | 14016.7 | 986.6 | 986.6 | 106.023 | 45.30 | 71.03 | 71.03 | 1214 |
| 85.000 | .5299E-03 | 13829.9 | 1340.9 | 1340.9 | 110.315 | 44.11 | 70.51 | 70.51 | 1179 |
| 90.000 | .1561E-02 | 13645.9 | 1692.8 | 1692.8 | 114.336 | 43.15 | 70.19 | 70.19 | 1144 |
| 95.000 | .4050E-02 | 13463.8 | 2043.1 | 2043.2 | 118.126 | 42.37 | 70.03 | 70.03 | 1109 |
| 100.000 | .9448E-02 | 13282.6 | 2392.9 | 2392.9 | 121.716 | 41.75 | 70.01 | 70.01 | 1075 |
| 105.000 | .2013E-01 | 13101.6 | 2742.7 | 2742.8 | 125.132 | 41.25 | 70.09 | 70.09 | 1041 |
| 110.000 | .3969E-01 | 12919.7 | 3093.2 | 3093.4 | 128.395 | 40.86 | 70.26 | 70.27 | 1007 |
| 115.000 | .7323E-01 | 12735.9 | 3444.9 | 3445.2 | 131.523 | 40.55 | 70.52 | 70.53 | 973 |
| 120.000 | .1275E+00 | 12549.4 | 3798.3 | 3798.8 | 134.531 | 40.33 | 70.84 | 70.86 | 940 |
| 125.000 | .2113E+00 | 12359.0 | 4153.6 | 4154.5 | 137.431 | 40.16 | 71.23 | 71.26 | 907 |
| 130.000 | .3350E+00 | 12163.8 | 4511.2 | 4512.7 | 140.234 | 40.06 | 71.69 | 71.74 | 874 |
| 135.000 | .5111E+00 | 11962.6 | 4871.2 | 4873.5 | 142.950 | 40.01 | 72.21 | 72.29 | 842 |
| 140.000 | .7538E+00 | 11754.3 | 5234.0 | 5237.4 | 145.588 | 40.02 | 72.80 | 72.91 | 809 |
| 144.094 | .1013E+01 | 11577.6 | 5533.4 | 5538.1 | 147.694 | 40.06 | 73.34 | 73.49 | 783 |
| 150.000 | .1504E+01 | 11311.4 | 5969.2 | 5976.2 | 150.659 | 40.18 | 74.22 | 74.44 | 745 |
| 155.000 | .2048E+01 | 11074.2 | 6342.3 | 6352.1 | 153.105 | 40.32 | 75.05 | 75.36 | 712 |
| 160.000 | .2730E+01 | 10824.4 | 6719.5 | 6732.7 | 155.502 | 40.52 | 75.99 | 76.41 | 680 |
| 165.000 | .3570E+01 | 10560.6 | 7101.5 | 7119.2 | 157.855 | 40.75 | 77.03 | 77.60 | 647 |
| 170.000 | .4591E+01 | 10280.8 | 7488.6 | 7511.8 | 160.170 | 41.02 | 78.19 | 78.96 | 615 |
| 175.000 | .5813E+01 | 9982.8 | 7882.0 | 7911.9 | 162.454 | 41.32 | 79.50 | 80.52 | 582 |
| 180.000 | .7261E+01 | 9664.3 | 8281.9 | 8320.1 | 164.713 | 41.64 | 80.96 | 82.32 | 550 |
| 185.000 | .8956E+01 | 9322.4 | 8689.5 | 8737.7 | 166.953 | 41.96 | 82.62 | 84.42 | 517 |
| 190.000 | .1092E+02 | 8953.4 | 9106.0 | 9166.3 | 169.181 | 42.29 | 84.52 | 86.91 | 484 |
| 195.000 | .1319E+02 | 8552.8 | 9532.4 | 9607.2 | 171.406 | 42.59 | 86.73 | 89.92 | 450 |
| 200.000 | .1578E+02 | 8114.7 | 9970.5 | 10062.6 | 173.636 | 42.87 | 89.38 | 93.70 | 416 |
| 205.000 | .1871E+02 | 7630.8 | 10422.6 | 10535.5 | 175.884 | 43.12 | 92.66 | 98.63 | 382 |
| 210.000 | .2203E+02 | 7089.3 | 10892.3 | 11030.2 | 178.168 | 43.34 | 96.99 | 105.48 | 346 |
| 215.000 | .2577E+02 | 6471.1 | 11385.0 | 11553.3 | 180.517 | 43.59 | 103.13 | 115.83 | 310 |
| 220.000 | .2995E+02 | 5742.9 | 11911.7 | 12117.9 | 182.984 | 44.01 | 112.93 | 133.56 | 271 |
| 225.000 | .3464E+02 | 4834.1 | 12499.0 | 12754.6 | 185.695 | 45.04 | 131.80 | 171.30 | 228 |
| 230.000 | .3991E+02 | 3532.2 | 13237.3 | 13565.6 | 189.080 | 48.48 | 187.24 | 305.62 | 177 |
| 232.000 | .4219E+02 | 2707.0 | 13666.7 | 14041.6 | 191.056 | 52.27 | 267.16 | 552.94 | 151 |
| 233.000 | .4338E+02 | 2077.1 | 13984.7 | 14395.8 | 192.532 | 55.23 | 395.13 | 1062.37 | 136 |
| 234.000 | .4461E+02 | 0.0 | 14897.2 | 15460.4 | 197.032 | 0.00 | 0.00 | 0.00 | 0 |

Table 14. Continued.

TABLE 15. Thermophysical Properties Along Isobars*

The following pages give physical and thermodynamic properties along selected isobars, as computed by methods of section 3 of the text.

The first line of each table refers to freezing liquid on an artifical P(T) melting line adopted from methane.

Each table at $P < P_c$ contains a blank line for the transition from saturated liquid to vapor, as seen by the abrupt decrease of density.

Table headings for partial derivatives have the following interpretations--

DP/DT $\equiv \partial P/\partial T$,

DP/DD $\equiv \partial P/\partial \rho$.

The specific heat interpretations are--

CV $\equiv C_v(\rho,T)$.

CP $\equiv C_p(\rho,T)$.

*These tables are extrapolated beyond the range of some of the P-ρ-T data used for adjusting the equation of state. Small discontinuities may be detected at T = 234.0 K along isobars at $P > P_c$ = 44.61 bar, due to change in the paths of computation, section 3.

NITROGEN TRIFLUORIDE ISOBAR AT .10000 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.352 | 26.320 | .03799 | .00069 | 45.4295 | 832.940 | .1 | .5 | 92.506 | 50.06 | 73.79 | 1315 |
| 70.000 | 26.120 | .03828 | .00066 | 43.1001 | 784.543 | 267.3 | 267.7 | 96.429 | 48.53 | 72.82 | 1287 |
| 80.000 | 25.565 | .03912 | .00059 | 37.4857 | 668.480 | 986.6 | 987.0 | 106.023 | 45.30 | 71.03 | 1215 |
| 90.000 | 24.998 | .04000 | .00053 | 32.7646 | 571.725 | 1692.6 | 1693.0 | 114.333 | 43.15 | 70.19 | 1144 |
| 100.000 | 24.419 | .04095 | .00049 | 28.7243 | 489.672 | 2392.8 | 2393.2 | 121.714 | 41.75 | 70.01 | 1075 |
| 110.000 | 23.825 | .04197 | .00046 | 25.2191 | 419.081 | 3093.2 | 3093.6 | 128.396 | 40.86 | 70.27 | 1007 |
| 117.748 | 23.353 | .04282 | .00044 | 22.8033 | 370.738 | 3638.9 | 3639.4 | 133.190 | 40.42 | 70.70 | 955 |
| 117.748 | .01028 | 97.270 | .99354 | .000858 | 9.665 | 15300.5 | 16273.2 | 240.485 | 26.74 | 35.23 | 133 |
| 120.000 | .01008 | 99.161 | .99385 | .000842 | 9.856 | 15361.0 | 16352.6 | 241.154 | 26.87 | 35.35 | 135 |
| 130.000 | .00930 | 107.547 | .99499 | .000775 | 10.702 | 15633.8 | 16709.3 | 244.008 | 27.56 | 36.01 | 140 |
| 140.000 | .00863 | 115.919 | .99584 | .000719 | 11.545 | 15914.0 | 17073.2 | 246.704 | 28.36 | 36.78 | 145 |
| 150.000 | .00805 | 124.282 | .99650 | .000670 | 12.386 | 16202.5 | 17445.3 | 249.271 | 29.25 | 37.65 | 149 |
| 160.000 | .00754 | 132.636 | .99703 | .000628 | 13.226 | 16500.1 | 17826.5 | 251.731 | 30.21 | 38.60 | 154 |
| 170.000 | .00709 | 140.986 | .99745 | .000591 | 14.064 | 16807.5 | 18217.4 | 254.100 | 31.22 | 39.60 | 158 |
| 180.000 | .00670 | 149.330 | .99779 | .000557 | 14.901 | 17125.3 | 18618.6 | 256.393 | 32.27 | 40.64 | 162 |
| 190.000 | .00634 | 157.671 | .99807 | .000528 | 15.738 | 17453.7 | 19030.4 | 258.619 | 33.36 | 41.72 | 166 |
| 200.000 | .00602 | 166.009 | .99831 | .000501 | 16.574 | 17793.0 | 19453.1 | 260.787 | 34.47 | 42.83 | 170 |
| 210.000 | .00574 | 174.345 | .99851 | .000477 | 17.410 | 18143.5 | 19887.0 | 262.904 | 35.59 | 43.94 | 174 |
| 220.000 | .00547 | 182.678 | .99868 | .000456 | 18.245 | 18505.2 | 20332.0 | 264.974 | 36.71 | 45.06 | 177 |
| 230.000 | .00524 | 191.009 | .99883 | .000436 | 19.080 | 18878.2 | 20788.3 | 267.002 | 37.84 | 46.18 | 181 |
| 240.000 | .00502 | 199.339 | .99895 | .000417 | 19.914 | 19262.3 | 21255.7 | 268.991 | 38.95 | 47.30 | 184 |
| 250.000 | .00482 | 207.668 | .99906 | .000401 | 20.748 | 19657.5 | 21734.1 | 270.944 | 40.05 | 48.39 | 187 |
| 260.000 | .00463 | 215.995 | .99916 | .000385 | 21.582 | 20063.6 | 22223.5 | 272.863 | 41.14 | 49.48 | 191 |
| 270.000 | .00446 | 224.321 | .99924 | .000371 | 22.416 | 20480.4 | 22723.6 | 274.750 | 42.20 | 50.54 | 194 |
| 280.000 | .00430 | 232.646 | .99931 | .000358 | 23.250 | 20907.8 | 23234.2 | 276.607 | 43.24 | 51.58 | 197 |
| 290.000 | .00415 | 240.971 | .99938 | .000345 | 24.083 | 21345.4 | 23755.1 | 278.435 | 44.26 | 52.59 | 200 |
| 300.000 | .00401 | 249.295 | .99944 | .000334 | 24.916 | 21793.1 | 24286.0 | 280.235 | 45.25 | 53.58 | 203 |
| 310.000 | .00388 | 257.618 | .99949 | .000323 | 25.749 | 22250.5 | 24826.6 | 282.007 | 46.21 | 54.54 | 206 |
| 320.000 | .00376 | 265.940 | .99953 | .000313 | 26.582 | 22717.3 | 25376.7 | 283.754 | 47.14 | 55.47 | 209 |
| 330.000 | .00365 | 274.262 | .99958 | .000303 | 27.415 | 23193.3 | 25936.0 | 285.475 | 48.04 | 56.37 | 212 |
| 340.000 | .00354 | 282.583 | .99961 | .000294 | 28.248 | 23678.2 | 26504.1 | 287.170 | 48.92 | 57.24 | 215 |
| 350.000 | .00344 | 290.904 | .99965 | .000286 | 29.081 | 24171.7 | 27080.8 | 288.842 | 49.76 | 58.09 | 218 |
| 360.000 | .00334 | 299.225 | .99968 | .000278 | 29.913 | 24673.5 | 27665.7 | 290.490 | 50.57 | 58.90 | 221 |
| 370.000 | .00325 | 307.545 | .99970 | .000270 | 30.746 | 25183.2 | 28258.7 | 292.114 | 51.36 | 59.68 | 224 |
| 380.000 | .00317 | 315.865 | .99973 | .000263 | 31.578 | 25700.7 | 28859.3 | 293.716 | 52.12 | 60.44 | 227 |
| 390.000 | .00308 | 324.184 | .99975 | .000257 | 32.411 | 26225.5 | 29467.4 | 295.296 | 52.84 | 61.17 | 229 |
| 400.000 | .00301 | 332.504 | .99977 | .000250 | 33.243 | 26757.6 | 30082.6 | 296.853 | 53.55 | 61.87 | 232 |
| 410.000 | .00293 | 340.823 | .99979 | .000244 | 34.076 | 27296.5 | 30704.7 | 298.389 | 54.22 | 62.55 | 235 |
| 420.000 | .00286 | 349.141 | .99981 | .000238 | 34.908 | 27842.0 | 31333.4 | 299.904 | 54.87 | 63.19 | 237 |
| 430.000 | .00280 | 357.460 | .99982 | .000233 | 35.740 | 28393.9 | 31968.5 | 301.399 | 55.50 | 63.82 | 240 |
| 440.000 | .00273 | 365.778 | .99984 | .000227 | 36.572 | 28952.0 | 32609.8 | 302.873 | 56.10 | 64.42 | 243 |
| 450.000 | .00267 | 374.096 | .99985 | .000222 | 37.404 | 29515.9 | 33256.9 | 304.327 | 56.68 | 65.00 | 245 |
| 460.000 | .00261 | 382.414 | .99986 | .000217 | 38.237 | 30085.5 | 33909.6 | 305.762 | 57.23 | 65.55 | 248 |
| 470.000 | .00256 | 390.732 | .99987 | .000213 | 39.069 | 30660.6 | 34567.9 | 307.177 | 57.77 | 66.09 | 250 |
| 480.000 | .00251 | 399.050 | .99988 | .000208 | 39.901 | 31240.8 | 35231.3 | 308.574 | 58.28 | 66.60 | 253 |
| 490.000 | .00245 | 407.367 | .99989 | .000204 | 40.733 | 31826.2 | 35899.8 | 309.953 | 58.78 | 67.10 | 255 |
| 500.000 | .00241 | 415.684 | .99990 | .000200 | 41.565 | 32416.3 | 36573.2 | 311.313 | 59.25 | 67.57 | 258 |

NITROGEN TRIFLUORIDE ISOBAR AT .50000 BAR

Table 15. Thermophysical Properties Along Isobars.

NITROGEN TRIFLUORIDE ISOBAR AT .50000 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.359 | 26.320 | .03799 | .00344 | 45.4305 | 833.069 | .4 | 2.3 | 92.511 | 50.06 | 73.79 | 1315 |
| 70.000 | 26.121 | .03828 | .00329 | 43.1060 | 784.769 | 267.1 | 269.0 | 96.426 | 48.53 | 72.82 | 1287 |
| 80.000 | 25.566 | .03911 | .00294 | 37.4914 | 668.693 | 986.3 | 988.3 | 106.019 | 45.30 | 71.03 | 1215 |
| 90.000 | 24.999 | .04000 | .00267 | 32.7701 | 571.930 | 1692.3 | 1694.3 | 114.329 | 43.15 | 70.19 | 1144 |
| 100.000 | 24.420 | .04095 | .00246 | 28.7298 | 489.871 | 2392.4 | 2394.5 | 121.710 | 41.75 | 70.00 | 1075 |
| 110.000 | 23.826 | .04197 | .00229 | 25.2246 | 419.276 | 3092.7 | 3094.8 | 128.391 | 40.86 | 70.26 | 1007 |
| 120.000 | 23.216 | .04307 | .00216 | 22.1497 | 357.780 | 3797.7 | 3799.9 | 134.529 | 40.33 | 70.86 | 940 |
| 130.000 | 22.586 | .04427 | .00205 | 19.4266 | 303.618 | 4510.8 | 4513.0 | 140.233 | 40.06 | 71.74 | 875 |
| 134.730 | 22.281 | .04488 | .00200 | 18.2430 | 280.154 | 4851.7 | 4854.0 | 142.806 | 40.02 | 72.26 | 844 |
| 134.730 | .04564 | 21.910 | .97792 | .003855 | 10.715 | 15732.1 | 16827.6 | 231.677 | 28.18 | 37.15 | 141 |
| 140.000 | .04383 | 22.818 | .98011 | .003693 | 11.186 | 15883.3 | 17024.2 | 233.106 | 28.54 | 37.43 | 143 |
| 150.000 | .04077 | 24.531 | .98345 | .003426 | 12.068 | 16175.3 | 17401.9 | 235.712 | 29.36 | 38.14 | 148 |
| 160.000 | .03812 | 26.235 | .98604 | .003197 | 12.941 | 16475.6 | 17787.4 | 238.200 | 30.28 | 38.98 | 153 |
| 170.000 | .03580 | 27.932 | .98808 | .002999 | 13.807 | 16785.2 | 18181.8 | 240.590 | 31.28 | 39.92 | 157 |
| 180.000 | .03376 | 29.625 | .98974 | .002825 | 14.668 | 17104.7 | 18586.0 | 242.900 | 32.32 | 40.92 | 161 |
| 190.000 | .03193 | 31.314 | .99110 | .002671 | 15.525 | 17434.6 | 19000.3 | 245.140 | 33.40 | 41.96 | 165 |
| 200.000 | .03030 | 32.999 | .99222 | .002533 | 16.379 | 17775.2 | 19425.2 | 247.319 | 34.50 | 43.03 | 169 |
| 210.000 | .02883 | 34.682 | .99317 | .002409 | 17.230 | 18126.8 | 19861.0 | 249.445 | 35.61 | 44.12 | 173 |
| 220.000 | .02750 | 36.363 | .99397 | .002297 | 18.079 | 18489.5 | 20307.7 | 251.523 | 36.74 | 45.22 | 177 |
| 230.000 | .02629 | 38.042 | .99465 | .002195 | 18.926 | 18863.3 | 20765.4 | 253.558 | 37.86 | 46.33 | 180 |
| 240.000 | .02518 | 39.720 | .99524 | .002101 | 19.771 | 19248.2 | 21234.2 | 255.553 | 38.97 | 47.42 | 184 |
| 250.000 | .02416 | 41.396 | .99574 | .002016 | 20.616 | 19644.1 | 21713.9 | 257.511 | 40.07 | 48.51 | 187 |
| 260.000 | .02322 | 43.070 | .99619 | .001937 | 21.459 | 20050.9 | 22204.4 | 259.434 | 41.15 | 49.58 | 190 |
| 270.000 | .02235 | 44.744 | .99657 | .001864 | 22.301 | 20468.3 | 22705.5 | 261.325 | 42.22 | 50.64 | 194 |
| 280.000 | .02154 | 46.417 | .99691 | .001797 | 23.142 | 20896.2 | 23217.1 | 263.186 | 43.26 | 51.67 | 197 |
| 290.000 | .02079 | 48.090 | .99721 | .001734 | 23.983 | 21334.4 | 23738.9 | 265.017 | 44.27 | 52.68 | 200 |
| 300.000 | .02010 | 49.761 | .99748 | .001675 | 24.823 | 21782.5 | 24270.6 | 266.819 | 45.26 | 53.66 | 203 |
| 310.000 | .01944 | 51.432 | .99771 | .001621 | 25.662 | 22240.3 | 24811.9 | 268.594 | 46.22 | 54.61 | 206 |
| 320.000 | .01883 | 53.102 | .99792 | .001569 | 26.501 | 22707.6 | 25362.7 | 270.343 | 47.15 | 55.54 | 209 |
| 330.000 | .01826 | 54.772 | .99811 | .001521 | 27.339 | 23184.0 | 25922.6 | 272.065 | 48.05 | 56.43 | 212 |
| 340.000 | .01772 | 56.441 | .99828 | .001476 | 28.176 | 23669.2 | 26491.3 | 273.763 | 48.92 | 57.30 | 215 |
| 350.000 | .01721 | 58.110 | .99843 | .001434 | 29.014 | 24163.0 | 27068.6 | 275.436 | 49.77 | 58.14 | 218 |
| 360.000 | .01673 | 59.779 | .99857 | .001394 | 29.851 | 24665.1 | 27654.0 | 277.086 | 50.58 | 58.95 | 221 |
| 370.000 | .01627 | 61.447 | .99869 | .001356 | 30.687 | 25175.1 | 28247.5 | 278.712 | 51.37 | 59.73 | 224 |
| 380.000 | .01584 | 63.115 | .99881 | .001320 | 31.523 | 25692.9 | 28848.6 | 280.315 | 52.12 | 60.49 | 226 |
| 390.000 | .01544 | 64.782 | .99891 | .001286 | 32.359 | 26218.0 | 29457.1 | 281.895 | 52.85 | 61.21 | 229 |
| 400.000 | .01505 | 66.450 | .99900 | .001253 | 33.195 | 26750.3 | 30072.8 | 283.454 | 53.55 | 61.91 | 232 |
| 410.000 | .01468 | 68.117 | .99909 | .001223 | 34.031 | 27289.4 | 30695.3 | 284.991 | 54.23 | 62.58 | 235 |
| 420.000 | .01433 | 69.783 | .99916 | .001193 | 34.866 | 27835.2 | 31324.4 | 286.507 | 54.88 | 63.23 | 237 |
| 430.000 | .01400 | 71.450 | .99924 | .001165 | 35.701 | 28387.3 | 31959.8 | 288.002 | 55.50 | 63.85 | 240 |
| 440.000 | .01368 | 73.116 | .99930 | .001139 | 36.536 | 28945.5 | 32601.4 | 289.477 | 56.10 | 64.45 | 243 |
| 450.000 | .01337 | 74.783 | .99936 | .001113 | 37.370 | 29509.7 | 33248.8 | 290.932 | 56.68 | 65.03 | 245 |
| 460.000 | .01308 | 76.449 | .99942 | .001089 | 38.205 | 30079.4 | 33901.9 | 292.367 | 57.24 | 65.58 | 248 |
| 470.000 | .01280 | 78.115 | .99947 | .001066 | 39.039 | 30654.7 | 34560.4 | 293.783 | 57.77 | 66.12 | 250 |
| 480.000 | .01253 | 79.780 | .99951 | .001043 | 39.873 | 31235.1 | 35224.1 | 295.181 | 58.29 | 66.63 | 253 |
| 490.000 | .01228 | 81.446 | .99956 | .001022 | 40.708 | 31820.6 | 35892.9 | 296.560 | 58.78 | 67.12 | 255 |
| 500.000 | .01203 | 83.112 | .99960 | .001002 | 41.542 | 32410.9 | 36566.5 | 297.921 | 59.25 | 67.59 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 1.01325 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.369 | 26.320 | .03799 | .00698 | 45.4319 | 833.234 | .9 | 4.7 | 92.518 | 50.05 | 73.79 | 1315 |
| 70.000 | 26.121 | .03828 | .00666 | 43.1135 | 785.059 | 266.8 | 270.7 | 96.422 | 48.53 | 72.82 | 1288 |
| 80.000 | 25.567 | .03911 | .00596 | 37.4987 | 668.967 | 985.9 | 989.9 | 106.015 | 45.30 | 71.02 | 1215 |
| 90.000 | 25.000 | .04000 | .00542 | 32.7772 | 572.193 | 1691.9 | 1695.9 | 114.324 | 43.15 | 70.19 | 1144 |
| 100.000 | 24.421 | .04095 | .00499 | 28.7368 | 490.126 | 2391.9 | 2396.1 | 121.705 | 41.75 | 70.00 | 1075 |
| 110.000 | 23.827 | .04197 | .00465 | 25.2316 | 419.526 | 3092.1 | 3096.4 | 128.386 | 40.86 | 70.26 | 1008 |
| 120.000 | 23.217 | .04307 | .00437 | 22.1567 | 358.028 | 3797.0 | 3801.4 | 134.523 | 40.33 | 70.85 | 941 |
| 130.000 | 22.588 | .04427 | .00415 | 19.4338 | 303.865 | 4510.0 | 4514.5 | 140.227 | 40.06 | 71.73 | 875 |
| 140.000 | 21.936 | .04559 | .00397 | 17.0017 | 255.694 | 5233.5 | 5238.2 | 145.583 | 40.02 | 72.91 | 809 |
| 144.094 | 21.662 | .04616 | .00390 | 16.0782 | 237.455 | 5533.4 | 5538.1 | 147.694 | 40.06 | 73.49 | 783 |
| 144.094 | .08782 | 11.387 | .96302 | .007514 | 11.110 | 15961.9 | 17115.7 | 228.042 | 29.18 | 38.68 | 144 |
| 150.000 | .08402 | 11.902 | .96698 | .007156 | 11.666 | 16138.9 | 17344.9 | 229.599 | 29.58 | 38.91 | 147 |
| 160.000 | .07833 | 12.766 | .97236 | .006640 | 12.587 | 16443.5 | 17737.1 | 232.130 | 30.42 | 39.56 | 151 |
| 170.000 | .07341 | 13.623 | .97655 | .006203 | 13.491 | 16756.3 | 18136.6 | 234.552 | 31.37 | 40.37 | 156 |
| 180.000 | .06909 | 14.473 | .97990 | .005826 | 14.384 | 17078.3 | 18544.9 | 236.885 | 32.39 | 41.29 | 160 |
| 190.000 | .06527 | 15.320 | .98262 | .005495 | 15.267 | 17410.3 | 18962.6 | 239.144 | 33.45 | 42.27 | 164 |
| 200.000 | .06187 | 16.163 | .98487 | .005201 | 16.144 | 17752.8 | 19390.5 | 241.338 | 34.54 | 43.30 | 168 |
| 210.000 | .05881 | 17.004 | .98674 | .004939 | 17.015 | 18105.9 | 19828.8 | 243.476 | 35.65 | 44.36 | 172 |
| 220.000 | .05605 | 17.842 | .98832 | .004703 | 17.881 | 18469.9 | 20277.7 | 245.564 | 36.77 | 45.43 | 176 |
| 230.000 | .05354 | 18.678 | .98967 | .004489 | 18.744 | 18844.8 | 20737.4 | 247.608 | 37.88 | 46.51 | 180 |
| 240.000 | .05125 | 19.513 | .99082 | .004294 | 19.603 | 19230.8 | 21207.9 | 249.610 | 38.99 | 47.59 | 183 |
| 250.000 | .04915 | 20.346 | .99181 | .004116 | 20.460 | 19627.6 | 21689.2 | 251.574 | 40.09 | 48.66 | 187 |
| 260.000 | .04722 | 21.179 | .99267 | .003952 | 21.315 | 20035.2 | 22181.1 | 253.504 | 41.17 | 49.72 | 190 |
| 270.000 | .04543 | 22.010 | .99343 | .003802 | 22.167 | 20453.4 | 22683.5 | 255.400 | 42.23 | 50.76 | 193 |
| 280.000 | .04378 | 22.840 | .99409 | .003662 | 23.018 | 20882.0 | 23196.3 | 257.264 | 43.27 | 51.78 | 196 |
| 290.000 | .04225 | 23.670 | .99467 | .003532 | 23.867 | 21320.8 | 23719.1 | 259.099 | 44.29 | 52.78 | 200 |
| 300.000 | .04082 | 24.499 | .99518 | .003412 | 24.715 | 21769.5 | 24251.8 | 260.905 | 45.27 | 53.75 | 203 |
| 310.000 | .03948 | 25.327 | .99564 | .003299 | 25.561 | 22227.9 | 24794.1 | 262.683 | 46.23 | 54.70 | 206 |
| 320.000 | .03823 | 26.155 | .99605 | .003194 | 26.407 | 22695.6 | 25345.8 | 264.434 | 47.16 | 55.62 | 209 |
| 330.000 | .03706 | 26.982 | .99641 | .003095 | 27.251 | 23172.5 | 25906.4 | 266.159 | 48.06 | 56.51 | 212 |
| 340.000 | .03596 | 27.809 | .99674 | .003003 | 28.095 | 23658.2 | 26475.9 | 267.859 | 48.94 | 57.37 | 215 |
| 350.000 | .03492 | 28.635 | .99703 | .002916 | 28.938 | 24152.4 | 27053.8 | 269.534 | 49.78 | 58.21 | 218 |
| 360.000 | .03394 | 29.461 | .99730 | .002833 | 29.780 | 24654.9 | 27640.0 | 271.186 | 50.59 | 59.01 | 221 |
| 370.000 | .03302 | 30.287 | .99754 | .002756 | 30.621 | 25165.3 | 28234.0 | 272.813 | 51.38 | 59.79 | 224 |
| 380.000 | .03214 | 31.112 | .99776 | .002682 | 31.462 | 25683.3 | 28835.7 | 274.418 | 52.13 | 60.54 | 226 |
| 390.000 | .03131 | 31.937 | .99795 | .002612 | 32.302 | 26208.8 | 29444.8 | 276.000 | 52.86 | 61.26 | 229 |
| 400.000 | .03052 | 32.762 | .99813 | .002546 | 33.142 | 26741.4 | 30060.9 | 277.560 | 53.56 | 61.96 | 232 |
| 410.000 | .02977 | 33.586 | .99830 | .002484 | 33.981 | 27280.8 | 30683.9 | 279.098 | 54.24 | 62.63 | 235 |
| 420.000 | .02906 | 34.411 | .99845 | .002424 | 34.820 | 27826.8 | 31313.5 | 280.615 | 54.89 | 63.28 | 237 |
| 430.000 | .02838 | 35.235 | .99858 | .002367 | 35.658 | 28379.2 | 31949.4 | 282.111 | 55.51 | 63.90 | 240 |
| 440.000 | .02773 | 36.059 | .99871 | .002312 | 36.496 | 28937.7 | 32591.3 | 283.587 | 56.11 | 64.49 | 243 |
| 450.000 | .02711 | 36.883 | .99882 | .002261 | 37.334 | 29502.0 | 33239.2 | 285.043 | 56.69 | 65.07 | 245 |
| 460.000 | .02652 | 37.706 | .99893 | .002211 | 38.171 | 30072.0 | 33892.6 | 286.479 | 57.24 | 65.62 | 248 |
| 470.000 | .02595 | 38.530 | .99903 | .002164 | 39.008 | 30647.5 | 34551.5 | 287.896 | 57.78 | 66.15 | 250 |
| 480.000 | .02541 | 39.353 | .99912 | .002118 | 39.845 | 31228.1 | 35215.6 | 289.294 | 58.29 | 66.66 | 253 |
| 490.000 | .02489 | 40.176 | .99920 | .002075 | 40.682 | 31813.8 | 35884.6 | 290.674 | 58.79 | 67.15 | 255 |
| 500.000 | .02439 | 40.999 | .99928 | .002033 | 41.518 | 32404.3 | 36558.5 | 292.035 | 59.26 | 67.62 | 258 |

NITROGEN TRIFLUORIDE ISOBAR AT 1.50000 BAR

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 1.50000 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.378 | 26.320 | .03799 | .01033 | 45.4332 | 833.390 | 1.3 | 7.0 | 92.524 | 50.05 | 73.78 | 1315 |
| 70.000 | 26.122 | .03828 | .00987 | 43.1207 | 785.334 | 266.5 | 272.3 | 96.418 | 48.53 | 72.82 | 1288 |
| 80.000 | 25.567 | .03911 | .00882 | 37.5056 | 669.227 | 985.6 | 991.5 | 106.011 | 45.30 | 71.02 | 1215 |
| 90.000 | 25.001 | .04000 | .00802 | 32.7839 | 572.442 | 1691.5 | 1697.5 | 114.320 | 43.15 | 70.18 | 1145 |
| 100.000 | 24.422 | .04095 | .00739 | 28.7434 | 490.368 | 2391.4 | 2397.6 | 121.700 | 41.75 | 70.00 | 1076 |
| 110.000 | 23.828 | .04197 | .00688 | 25.2382 | 419.763 | 3091.5 | 3097.8 | 128.381 | 40.86 | 70.26 | 1008 |
| 120.000 | 23.218 | .04307 | .00648 | 22.1634 | 358.263 | 3796.4 | 3802.8 | 134.517 | 40.32 | 70.85 | 941 |
| 130.000 | 22.590 | .04427 | .00614 | 19.4406 | 304.100 | 4509.2 | 4515.8 | 140.220 | 40.06 | 71.72 | 875 |
| 140.000 | 21.938 | .04558 | .00587 | 17.0087 | 255.930 | 5232.6 | 5239.4 | 145.577 | 40.02 | 72.90 | 810 |
| 149.956 | 21.261 | .04703 | .00566 | 14.8277 | 212.900 | 5965.9 | 5973.0 | 150.637 | 40.17 | 74.43 | 745 |
| 149.956 | .12649 | 7.906 | .95110 | .010942 | 11.272 | 16100.5 | 17286.4 | 226.082 | 29.90 | 39.85 | 145 |
| 150.000 | .12645 | 7.908 | .95114 | .010938 | 11.277 | 16102.2 | 17288.4 | 226.092 | 29.90 | 39.86 | 145 |
| 160.000 | .11753 | 8.509 | .95941 | .010075 | 12.251 | 16411.9 | 17688.3 | 228.673 | 30.60 | 40.20 | 150 |
| 170.000 | .10989 | 9.100 | .96574 | .009369 | 13.196 | 16728.3 | 18093.3 | 231.128 | 31.49 | 40.86 | 155 |
| 180.000 | .10325 | 9.686 | .97074 | .008771 | 14.120 | 17053.1 | 18505.9 | 233.486 | 32.47 | 41.67 | 159 |
| 190.000 | .09741 | 10.266 | .97478 | .008252 | 15.029 | 17387.2 | 18927.2 | 235.764 | 33.52 | 42.59 | 164 |
| 200.000 | .09222 | 10.843 | .97810 | .007797 | 15.928 | 17731.4 | 19357.9 | 237.973 | 34.59 | 43.57 | 168 |
| 210.000 | .08759 | 11.417 | .98085 | .007393 | 16.818 | 18086.1 | 19798.7 | 240.123 | 35.69 | 44.59 | 172 |
| 220.000 | .08341 | 11.989 | .98317 | .007030 | 17.702 | 18451.4 | 20249.8 | 242.221 | 36.80 | 45.63 | 175 |
| 230.000 | .07962 | 12.559 | .98513 | .006704 | 18.579 | 18827.5 | 20711.4 | 244.273 | 37.91 | 46.69 | 179 |
| 240.000 | .07617 | 13.128 | .98681 | .006407 | 19.452 | 19214.4 | 21183.6 | 246.283 | 39.02 | 47.75 | 183 |
| 250.000 | .07302 | 13.695 | .98825 | .006137 | 20.320 | 19612.2 | 21666.4 | 248.253 | 40.11 | 48.80 | 186 |
| 260.000 | .07012 | 14.261 | .98950 | .005889 | 21.185 | 20020.6 | 22159.6 | 250.188 | 41.19 | 49.85 | 190 |
| 270.000 | .06745 | 14.825 | .99059 | .005661 | 22.047 | 20439.5 | 22663.3 | 252.088 | 42.25 | 50.88 | 193 |
| 280.000 | .06498 | 15.389 | .99155 | .005450 | 22.907 | 20868.8 | 23177.1 | 253.957 | 43.29 | 51.89 | 196 |
| 290.000 | .06269 | 15.952 | .99239 | .005255 | 23.764 | 21308.1 | 23701.0 | 255.795 | 44.30 | 52.88 | 199 |
| 300.000 | .06055 | 16.515 | .99313 | .005074 | 24.619 | 21757.4 | 24234.6 | 257.604 | 45.29 | 53.84 | 203 |
| 310.000 | .05856 | 17.077 | .99379 | .004905 | 25.472 | 22216.3 | 24777.8 | 259.385 | 46.25 | 54.78 | 206 |
| 320.000 | .05670 | 17.638 | .99438 | .004747 | 26.324 | 22684.5 | 25330.2 | 261.139 | 47.18 | 55.70 | 209 |
| 330.000 | .05495 | 18.199 | .99491 | .004599 | 27.174 | 23161.9 | 25891.7 | 262.867 | 48.08 | 56.58 | 212 |
| 340.000 | .05331 | 18.759 | .99538 | .004461 | 28.023 | 23648.0 | 26461.8 | 264.569 | 48.95 | 57.44 | 215 |
| 350.000 | .05176 | 19.319 | .99580 | .004330 | 28.871 | 24142.6 | 27040.4 | 266.246 | 49.79 | 58.27 | 218 |
| 360.000 | .05031 | 19.879 | .99618 | .004207 | 29.718 | 24645.4 | 27627.2 | 267.899 | 50.60 | 59.07 | 221 |
| 370.000 | .04893 | 20.438 | .99652 | .004091 | 30.563 | 25156.1 | 28221.8 | 269.528 | 51.38 | 59.85 | 223 |
| 380.000 | .04763 | 20.997 | .99684 | .003981 | 31.408 | 25674.5 | 28824.0 | 271.134 | 52.14 | 60.59 | 226 |
| 390.000 | .04639 | 21.555 | .99712 | .003877 | 32.252 | 26200.3 | 29433.6 | 272.717 | 52.87 | 61.31 | 229 |
| 400.000 | .04522 | 22.114 | .99738 | .003778 | 33.096 | 26733.1 | 30050.2 | 274.278 | 53.57 | 62.01 | 232 |
| 410.000 | .04411 | 22.672 | .99761 | .003685 | 33.938 | 27272.8 | 30673.6 | 275.818 | 54.24 | 62.67 | 235 |
| 420.000 | .04305 | 23.230 | .99782 | .003595 | 34.780 | 27819.1 | 31303.6 | 277.336 | 54.89 | 63.32 | 237 |
| 430.000 | .04204 | 23.788 | .99802 | .003511 | 35.622 | 28371.7 | 31939.9 | 278.833 | 55.52 | 63.94 | 240 |
| 440.000 | .04108 | 24.345 | .99820 | .003430 | 36.463 | 28930.4 | 32582.2 | 280.309 | 56.12 | 64.53 | 243 |
| 450.000 | .04016 | 24.903 | .99836 | .003352 | 37.303 | 29495.0 | 33230.4 | 281.766 | 56.69 | 65.10 | 245 |
| 460.000 | .03928 | 25.460 | .99851 | .003279 | 38.143 | 30065.2 | 33884.2 | 283.203 | 57.25 | 65.65 | 248 |
| 470.000 | .03844 | 26.017 | .99865 | .003208 | 38.983 | 30640.8 | 34543.4 | 284.621 | 57.78 | 66.18 | 250 |
| 480.000 | .03763 | 26.574 | .99878 | .003140 | 39.822 | 31221.7 | 35207.8 | 286.019 | 58.30 | 66.69 | 253 |
| 490.000 | .03686 | 27.131 | .99890 | .003076 | 40.661 | 31807.5 | 35877.2 | 287.400 | 58.79 | 67.18 | 255 |
| 500.000 | .03612 | 27.688 | .99901 | .003013 | 41.499 | 32398.2 | 36551.3 | 288.762 | 59.27 | 67.65 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 2 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.388 | 26.320 | .03799 | .01377 | 45.4345 | 833.550 | 1.7 | 9.3 | 92.531 | 50.04 | 73.78 | 1315 |
| 70.000 | 26.123 | .03828 | .01315 | 43.1281 | 785.617 | 266.2 | 273.9 | 96.414 | 48.53 | 72.81 | 1288 |
| 80.000 | 25.568 | .03911 | .01176 | 37.5127 | 669.494 | 985.3 | 993.1 | 106.007 | 45.30 | 71.02 | 1215 |
| 90.000 | 25.002 | .04000 | .01069 | 32.7909 | 572.698 | 1691.1 | 1699.1 | 114.315 | 43.15 | 70.18 | 1145 |
| 100.000 | 24.423 | .04095 | .00985 | 28.7502 | 490.616 | 2391.0 | 2399.1 | 121.695 | 41.75 | 69.99 | 1076 |
| 110.000 | 23.829 | .04197 | .00918 | 25.2450 | 420.006 | 3091.3 | 3099.4 | 128.376 | 40.86 | 70.25 | 1008 |
| 120.000 | 23.220 | .04307 | .00863 | 22.1703 | 358.504 | 3795.7 | 3804.3 | 134.511 | 40.32 | 70.84 | 941 |
| 130.000 | 22.591 | .04426 | .00819 | 19.4476 | 304.341 | 4508.4 | 4517.2 | 140.214 | 40.06 | 71.71 | 875 |
| 140.000 | 21.940 | .04558 | .00783 | 17.0159 | 256.173 | 5231.6 | 5240.8 | 145.570 | 40.02 | 72.89 | 810 |
| 150.000 | 21.261 | .04704 | .00754 | 14.8261 | 212.966 | 5968.2 | 5977.6 | 150.649 | 40.17 | 74.43 | 745 |
| 154.604 | 20.936 | .04776 | .00743 | 13.8876 | 194.512 | 6312.6 | 6322.2 | 152.913 | 40.31 | 75.28 | 715 |
| 154.604 | .16549 | 6.043 | .94017 | .014468 | 11.347 | 16207.0 | 17415.6 | 224.667 | 30.51 | 40.93 | 146 |
| 160.000 | .15893 | 6.292 | .94595 | .013799 | 11.901 | 16378.1 | 17636.6 | 226.070 | 30.83 | 40.96 | 149 |
| 170.000 | .14822 | 6.747 | .95462 | .012762 | 12.891 | 16698.8 | 18048.1 | 228.565 | 31.63 | 41.41 | 154 |
| 180.000 | .13900 | 7.194 | .96140 | .011903 | 13.850 | 17026.7 | 18465.5 | 230.950 | 32.57 | 42.10 | 158 |
| 190.000 | .13095 | 7.637 | .96683 | .011170 | 14.788 | 17363.3 | 18890.6 | 233.249 | 33.59 | 42.94 | 163 |
| 200.000 | .12383 | 8.075 | .97125 | .010531 | 15.711 | 17709.5 | 19324.6 | 235.474 | 34.65 | 43.86 | 167 |
| 210.000 | .11749 | 8.511 | .97492 | .009969 | 16.621 | 18065.7 | 19768.0 | 237.637 | 35.74 | 44.84 | 171 |
| 220.000 | .11180 | 8.945 | .97799 | .009468 | 17.522 | 18432.5 | 20221.4 | 239.746 | 36.84 | 45.85 | 175 |
| 230.000 | .10665 | 9.376 | .98059 | .009018 | 18.414 | 18809.8 | 20685.0 | 241.807 | 37.95 | 46.88 | 178 |
| 240.000 | .10198 | 9.806 | .98280 | .008611 | 19.300 | 19197.8 | 21158.9 | 243.824 | 39.05 | 47.91 | 182 |
| 250.000 | .09771 | 10.234 | .98470 | .008242 | 20.181 | 19596.4 | 21643.3 | 245.801 | 40.14 | 48.95 | 186 |
| 260.000 | .09380 | 10.661 | .98635 | .007903 | 21.057 | 20005.7 | 22137.9 | 247.741 | 41.21 | 49.98 | 189 |
| 270.000 | .09019 | 11.087 | .98778 | .007593 | 21.929 | 20425.4 | 22642.9 | 249.646 | 42.27 | 51.00 | 193 |
| 280.000 | .08686 | 11.513 | .98904 | .007307 | 22.797 | 20855.3 | 23157.9 | 251.519 | 43.31 | 52.00 | 196 |
| 290.000 | .08377 | 11.937 | .99014 | .007042 | 23.662 | 21295.3 | 23682.8 | 253.361 | 44.32 | 52.98 | 199 |
| 300.000 | .08090 | 12.361 | .99111 | .006797 | 24.525 | 21745.2 | 24217.4 | 255.173 | 45.30 | 53.94 | 202 |
| 310.000 | .07822 | 12.784 | .99197 | .006568 | 25.385 | 22204.6 | 24761.4 | 256.957 | 46.26 | 54.87 | 205 |
| 320.000 | .07572 | 13.207 | .99274 | .006355 | 26.243 | 22673.3 | 25314.7 | 258.714 | 47.19 | 55.78 | 209 |
| 330.000 | .07337 | 13.629 | .99343 | .006155 | 27.099 | 23151.1 | 25876.9 | 260.444 | 48.09 | 56.66 | 212 |
| 340.000 | .07117 | 14.050 | .99404 | .005968 | 27.953 | 23637.6 | 26447.7 | 262.148 | 48.96 | 57.51 | 215 |
| 350.000 | .06910 | 14.472 | .99459 | .005792 | 28.806 | 24132.6 | 27027.0 | 263.827 | 49.80 | 58.33 | 218 |
| 360.000 | .06715 | 14.893 | .99509 | .005626 | 29.658 | 24635.8 | 27614.3 | 265.481 | 50.61 | 59.13 | 220 |
| 370.000 | .06530 | 15.313 | .99554 | .005470 | 30.508 | 25146.9 | 28209.5 | 267.112 | 51.39 | 59.90 | 223 |
| 380.000 | .06356 | 15.733 | .99594 | .005322 | 31.357 | 25665.6 | 28812.3 | 268.719 | 52.15 | 60.65 | 226 |
| 390.000 | .06191 | 16.153 | .99631 | .005182 | 32.205 | 26191.7 | 29422.4 | 270.304 | 52.88 | 61.36 | 229 |
| 400.000 | .06034 | 16.573 | .99664 | .005050 | 33.052 | 26724.8 | 30039.5 | 271.866 | 53.58 | 62.05 | 232 |
| 410.000 | .05885 | 16.993 | .99695 | .004924 | 33.898 | 27264.8 | 30663.3 | 273.407 | 54.25 | 62.72 | 234 |
| 420.000 | .05743 | 17.412 | .99723 | .004804 | 34.743 | 27811.3 | 31293.7 | 274.926 | 54.90 | 63.36 | 237 |
| 430.000 | .05608 | 17.831 | .99748 | .004690 | 35.588 | 28364.2 | 31930.4 | 276.424 | 55.52 | 63.97 | 240 |
| 440.000 | .05479 | 18.250 | .99771 | .004581 | 36.431 | 28923.1 | 32573.1 | 277.902 | 56.12 | 64.57 | 242 |
| 450.000 | .05357 | 18.669 | .99793 | .004478 | 37.274 | 29487.9 | 33221.7 | 279.359 | 56.70 | 65.14 | 245 |
| 460.000 | .05239 | 19.087 | .99812 | .004379 | 38.117 | 30058.3 | 33875.8 | 280.797 | 57.26 | 65.69 | 248 |
| 470.000 | .05127 | 19.506 | .99830 | .004284 | 38.959 | 30634.2 | 34535.3 | 282.215 | 57.79 | 66.21 | 250 |
| 480.000 | .05019 | 19.924 | .99847 | .004194 | 39.800 | 31215.2 | 35200.0 | 283.615 | 58.30 | 66.72 | 253 |
| 490.000 | .04916 | 20.342 | .99862 | .004107 | 40.641 | 31801.2 | 35869.7 | 284.995 | 58.80 | 67.21 | 255 |
| 500.000 | .04817 | 20.761 | .99876 | .004023 | 41.482 | 32392.1 | 36544.2 | 286.358 | 59.27 | 67.68 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 3 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.406 | 26.321 | .03799 | .02064 | 45.4371 | 833.871 | 2.6 | 14.0 | 92.544 | 50.04 | 73.77 | 1315 |
| 70.000 | 26.124 | .03828 | .01973 | 43.1428 | 786.182 | 265.7 | 277.2 | 96.406 | 48.53 | 72.81 | 1288 |
| 80.000 | 25.570 | .03911 | .01764 | 37.5268 | 670.028 | 984.6 | 996.3 | 105.998 | 45.30 | 71.01 | 1216 |
| 90.000 | 25.004 | .03999 | .01603 | 32.8047 | 573.211 | 1690.3 | 1702.3 | 114.306 | 43.15 | 70.18 | 1145 |
| 100.000 | 24.425 | .04094 | .01477 | 28.7639 | 491.113 | 2390.0 | 2402.3 | 121.686 | 41.75 | 69.99 | 1076 |
| 110.000 | 23.832 | .04196 | .01376 | 25.2586 | 420.493 | 3089.8 | 3102.4 | 128.365 | 40.86 | 70.24 | 1009 |
| 120.000 | 23.223 | .04306 | .01295 | 22.1841 | 358.986 | 3794.3 | 3807.2 | 134.500 | 40.32 | 70.83 | 942 |
| 130.000 | 22.595 | .04426 | .01228 | 19.4616 | 304.822 | 4506.7 | 4520.0 | 140.202 | 40.06 | 71.70 | 876 |
| 140.000 | 21.944 | .04557 | .01174 | 17.0304 | 256.658 | 5229.7 | 5243.4 | 145.556 | 40.01 | 72.87 | 811 |
| 150.000 | 21.265 | .04702 | .01131 | 14.8412 | 213.460 | 5965.9 | 5980.0 | 150.633 | 40.17 | 74.40 | 746 |
| 160.000 | 20.550 | .04866 | .01097 | 12.8529 | 174.421 | 6718.8 | 6733.4 | 155.496 | 40.52 | 76.40 | 680 |
| 161.722 | 20.423 | .04897 | .01092 | 12.5280 | 168.070 | 6850.4 | 6865.1 | 156.317 | 40.59 | 76.80 | 669 |
| 161.722 | .24230 | 4.127 | .92080 | .021604 | 11.363 | 16362.2 | 17600.3 | 222.698 | 31.53 | 42.85 | 147 |
| 170.000 | .22772 | 4.391 | .93203 | .020037 | 12.268 | 16637.0 | 17954.4 | 224.830 | 31.99 | 42.72 | 151 |
| 180.000 | .21265 | 4.702 | .94263 | .018526 | 13.307 | 16972.3 | 18383.0 | 227.280 | 32.81 | 43.07 | 156 |
| 190.000 | .19969 | 5.008 | .95098 | .017279 | 14.307 | 17314.4 | 18816.7 | 229.625 | 33.76 | 43.70 | 161 |
| 200.000 | .18837 | 5.309 | .95772 | .016219 | 15.280 | 17664.9 | 19257.5 | 231.886 | 34.78 | 44.48 | 165 |
| 210.000 | .17837 | 5.606 | .96325 | .015299 | 16.233 | 18024.8 | 19706.7 | 234.077 | 35.84 | 45.36 | 170 |
| 220.000 | .16945 | 5.901 | .96785 | .014490 | 17.169 | 18394.5 | 20164.9 | 236.208 | 36.92 | 46.29 | 174 |
| 230.000 | .16144 | 6.194 | .97172 | .013770 | 18.093 | 18774.4 | 20632.6 | 238.288 | 38.02 | 47.26 | 177 |
| 240.000 | .15419 | 6.485 | .97501 | .013124 | 19.007 | 19164.6 | 21110.2 | 240.320 | 39.11 | 48.25 | 181 |
| 250.000 | .14760 | 6.775 | .97783 | .012540 | 19.912 | 19565.2 | 21597.7 | 242.310 | 40.19 | 49.25 | 185 |
| 260.000 | .14157 | 7.064 | .98025 | .012010 | 20.809 | 19976.2 | 22095.3 | 244.261 | 41.26 | 50.25 | 188 |
| 270.000 | .13603 | 7.351 | .98236 | .011524 | 21.701 | 20397.4 | 22602.8 | 246.176 | 42.31 | 51.24 | 192 |
| 280.000 | .13093 | 7.638 | .98420 | .011079 | 22.587 | 20828.8 | 23120.1 | 248.058 | 43.34 | 52.22 | 195 |
| 290.000 | .12621 | 7.923 | .98582 | .010668 | 23.468 | 21270.1 | 23647.1 | 249.907 | 44.35 | 53.18 | 199 |
| 300.000 | .12183 | 8.208 | .98724 | .010288 | 24.345 | 21721.1 | 24183.6 | 251.726 | 45.33 | 54.12 | 202 |
| 310.000 | .11775 | 8.493 | .98850 | .009935 | 25.219 | 22181.6 | 24729.4 | 253.515 | 46.29 | 55.04 | 205 |
| 320.000 | .11394 | 8.777 | .98962 | .009606 | 26.089 | 22651.3 | 25284.3 | 255.277 | 47.21 | 55.93 | 208 |
| 330.000 | .11037 | 9.060 | .99061 | .009299 | 26.957 | 23130.0 | 25848.0 | 257.011 | 48.11 | 56.80 | 211 |
| 340.000 | .10703 | 9.343 | .99151 | .009012 | 27.822 | 23617.3 | 26420.3 | 258.720 | 48.98 | 57.64 | 214 |
| 350.000 | .10389 | 9.626 | .99231 | .008742 | 28.685 | 24113.1 | 27000.8 | 260.403 | 49.82 | 58.46 | 217 |
| 360.000 | .10093 | 9.908 | .99303 | .008489 | 29.545 | 24617.0 | 27589.4 | 262.061 | 50.63 | 59.25 | 220 |
| 370.000 | .09814 | 10.190 | .99367 | .008250 | 30.404 | 25128.8 | 28185.7 | 263.694 | 51.41 | 60.01 | 223 |
| 380.000 | .09550 | 10.471 | .99426 | .008024 | 31.261 | 25648.2 | 28789.6 | 265.305 | 52.17 | 60.75 | 226 |
| 390.000 | .09300 | 10.753 | .99479 | .007811 | 32.117 | 26174.8 | 29400.6 | 266.892 | 52.89 | 61.46 | 229 |
| 400.000 | .09063 | 11.034 | .99528 | .007609 | 32.971 | 26708.6 | 30018.7 | 268.457 | 53.59 | 62.14 | 232 |
| 410.000 | .08838 | 11.314 | .99572 | .007417 | 33.823 | 27249.1 | 30643.4 | 269.999 | 54.27 | 62.80 | 234 |
| 420.000 | .08624 | 11.595 | .99612 | .007235 | 34.675 | 27796.1 | 31274.7 | 271.520 | 54.91 | 63.44 | 237 |
| 430.000 | .08421 | 11.876 | .99648 | .007062 | 35.525 | 28349.5 | 31912.1 | 273.020 | 55.54 | 64.05 | 240 |
| 440.000 | .08227 | 12.156 | .99682 | .006897 | 36.374 | 28908.9 | 32555.6 | 274.500 | 56.14 | 64.64 | 242 |
| 450.000 | .08041 | 12.436 | .99713 | .006740 | 37.223 | 29474.1 | 33204.9 | 275.959 | 56.71 | 65.21 | 245 |
| 460.000 | .07864 | 12.716 | .99741 | .006590 | 38.070 | 30044.9 | 33859.7 | 277.398 | 57.27 | 65.75 | 248 |
| 470.000 | .07695 | 12.996 | .99767 | .006446 | 38.917 | 30621.1 | 34519.8 | 278.818 | 57.80 | 66.28 | 250 |
| 480.000 | .07533 | 13.275 | .99791 | .006309 | 39.763 | 31202.5 | 35185.1 | 280.218 | 58.31 | 66.78 | 253 |
| 490.000 | .07377 | 13.555 | .99813 | .006177 | 40.608 | 31788.9 | 35855.4 | 281.600 | 58.81 | 67.27 | 255 |
| 500.000 | .07228 | 13.834 | .99833 | .006051 | 41.453 | 32380.1 | 36530.4 | 282.964 | 59.28 | 67.73 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 4 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.425 | 26.321 | .03799 | .02752 | 45.4397 | 834.191 | 3.4 | 18.6 | 92.557 | 50.03 | 73.76 | 1316 |
| 70.000 | 26.125 | .03828 | .02631 | 43.1576 | 786.746 | 265.1 | 280.4 | 96.397 | 48.53 | 72.81 | 1289 |
| 80.000 | 25.571 | .03911 | .02352 | 37.5410 | 670.563 | 983.9 | 999.5 | 105.989 | 45.30 | 71.01 | 1216 |
| 90.000 | 25.005 | .03999 | .02138 | 32.8185 | 573.722 | 1689.4 | 1705.4 | 114.297 | 43.15 | 70.17 | 1146 |
| 100.000 | 24.427 | .04094 | .01970 | 28.7775 | 491.610 | 2389.0 | 2405.4 | 121.676 | 41.75 | 69.98 | 1077 |
| 110.000 | 23.834 | .04196 | .01835 | 25.2723 | 420.980 | 3088.6 | 3105.4 | 123.354 | 40.66 | 70.23 | 1009 |
| 120.000 | 23.225 | .04306 | .01726 | 22.1978 | 359.468 | 3792.9 | 3810.1 | 134.488 | 40.32 | 70.82 | 942 |
| 130.000 | 22.598 | .04425 | .01638 | 19.4757 | 305.303 | 4505.1 | 4522.8 | 140.189 | 40.06 | 71.68 | 877 |
| 140.000 | 21.948 | .04556 | .01566 | 17.0448 | 257.143 | 5227.8 | 5246.0 | 145.542 | 40.01 | 72.85 | 812 |
| 150.000 | 21.270 | .04701 | .01508 | 14.8563 | 213.953 | 5963.6 | 5982.4 | 150.618 | 40.17 | 74.37 | 746 |
| 160.000 | 20.556 | .04865 | .01463 | 12.8689 | 174.928 | 6716.0 | 6735.5 | 155.476 | 40.51 | 76.36 | 681 |
| 167.222 | 20.011 | .04997 | .01438 | 11.5379 | 148.967 | 7272.9 | 7292.8 | 158.888 | 40.87 | 78.18 | 633 |
| 167.222 | .31838 | 3.141 | .90361 | .028913 | 11.283 | 16474.8 | 17731.2 | 221.310 | 32.40 | 44.62 | 147 |
| 170.000 | .31146 | 3.211 | .90859 | .028100 | 11.615 | 16570.7 | 17855.0 | 222.042 | 32.48 | 44.39 | 149 |
| 180.000 | .28941 | 3.455 | .92349 | .025691 | 12.750 | 16915.3 | 18297.4 | 224.571 | 33.10 | 44.22 | 154 |
| 190.000 | .27080 | 3.693 | .93502 | .023792 | 13.820 | 17263.9 | 18741.0 | 226.970 | 33.96 | 44.57 | 159 |
| 200.000 | .25476 | 3.925 | .94421 | .022219 | 14.849 | 17619.5 | 19189.6 | 229.271 | 34.93 | 45.17 | 164 |
| 210.000 | .24072 | 4.154 | .95168 | .020879 | 15.847 | 17983.3 | 19645.0 | 231.492 | 35.95 | 45.92 | 168 |
| 220.000 | .22830 | 4.380 | .95786 | .019715 | 16.822 | 18356.2 | 20108.3 | 233.648 | 37.01 | 46.77 | 173 |
| 230.000 | .21720 | 4.604 | .96303 | .018690 | 17.778 | 18738.9 | 20580.5 | 235.746 | 38.09 | 47.67 | 177 |
| 240.000 | .20721 | 4.826 | .96740 | .017778 | 18.720 | 19131.4 | 21061.9 | 237.795 | 39.17 | 48.61 | 180 |
| 250.000 | .19815 | 5.047 | .97114 | .016960 | 19.650 | 19534.1 | 21552.7 | 239.799 | 40.25 | 49.56 | 184 |
| 260.000 | .18991 | 5.266 | .97434 | .016219 | 20.570 | 19946.9 | 22053.2 | 241.761 | 41.31 | 50.53 | 188 |
| 270.000 | .18235 | 5.484 | .97712 | .015546 | 21.481 | 20369.7 | 22563.3 | 243.686 | 42.36 | 51.49 | 191 |
| 280.000 | .17540 | 5.701 | .97954 | .014929 | 22.385 | 20802.5 | 23083.0 | 245.576 | 43.38 | 52.44 | 195 |
| 290.000 | .16899 | 5.917 | .98166 | .014363 | 23.282 | 21245.1 | 23612.1 | 247.433 | 44.39 | 53.38 | 198 |
| 300.000 | .16305 | 6.133 | .98353 | .013840 | 24.174 | 21697.3 | 24150.6 | 249.258 | 45.36 | 54.31 | 201 |
| 310.000 | .15752 | 6.348 | .98518 | .013356 | 25.061 | 22158.9 | 24698.2 | 251.054 | 46.32 | 55.21 | 205 |
| 320.000 | .15238 | 6.563 | .98664 | .012906 | 25.944 | 22629.6 | 25254.7 | 252.821 | 47.24 | 56.09 | 208 |
| 330.000 | .14756 | 6.777 | .98794 | .012487 | 26.823 | 23109.2 | 25819.9 | 254.560 | 48.14 | 56.95 | 211 |
| 340.000 | .14306 | 6.990 | .98910 | .012095 | 27.698 | 23597.4 | 26393.5 | 256.272 | 49.00 | 57.78 | 214 |
| 350.000 | .13882 | 7.203 | .99015 | .011728 | 28.570 | 24094.0 | 26975.4 | 257.959 | 49.84 | 58.59 | 217 |
| 360.000 | .13484 | 7.416 | .99108 | .011383 | 29.440 | 24598.6 | 27565.2 | 259.620 | 50.65 | 59.37 | 220 |
| 370.000 | .13108 | 7.629 | .99193 | .011058 | 30.307 | 25111.1 | 28162.6 | 261.257 | 51.43 | 60.12 | 223 |
| 380.000 | .12753 | 7.841 | .99269 | .010752 | 31.172 | 25631.1 | 28767.5 | 262.870 | 52.19 | 60.85 | 226 |
| 390.000 | .12418 | 8.053 | .99338 | .010463 | 32.035 | 26158.4 | 29379.6 | 264.460 | 52.91 | 61.55 | 229 |
| 400.000 | .12100 | 8.265 | .99401 | .010190 | 32.896 | 26692.6 | 29998.5 | 266.027 | 53.61 | 62.23 | 231 |
| 410.000 | .11798 | 8.476 | .99458 | .009931 | 33.755 | 27233.7 | 30624.2 | 267.572 | 54.28 | 62.89 | 234 |
| 420.000 | .11511 | 8.687 | .99510 | .009685 | 34.613 | 27781.2 | 31256.2 | 269.095 | 54.93 | 63.52 | 237 |
| 430.000 | .11238 | 8.899 | .99557 | .009451 | 35.469 | 28335.1 | 31894.5 | 270.597 | 55.55 | 64.13 | 240 |
| 440.000 | .10978 | 9.109 | .99601 | .009228 | 36.323 | 28894.9 | 32538.7 | 272.078 | 56.15 | 64.71 | 242 |
| 450.000 | .10729 | 9.320 | .99640 | .009016 | 37.177 | 29460.6 | 33188.6 | 273.538 | 56.73 | 65.27 | 245 |
| 460.000 | .10492 | 9.531 | .99677 | .008814 | 38.029 | 30031.8 | 33844.1 | 274.979 | 57.28 | 65.82 | 248 |
| 470.000 | .10266 | 9.741 | .99710 | .008621 | 38.881 | 30608.4 | 34504.9 | 276.400 | 57.81 | 66.34 | 250 |
| 480.000 | .10049 | 9.952 | .99741 | .008436 | 39.731 | 31190.2 | 35170.8 | 277.802 | 58.33 | 66.84 | 253 |
| 490.000 | .09841 | 10.162 | .99769 | .008259 | 40.580 | 31776.9 | 35841.6 | 279.185 | 58.82 | 67.32 | 255 |
| 500.000 | .09641 | 10.372 | .99795 | .008089 | 41.429 | 32368.4 | 36517.2 | 280.550 | 59.29 | 67.79 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 5 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.444 | 26.321 | .03799 | .03439 | 45.4422 | 834.511 | 4.3 | 23.3 | 92.570 | 50.02 | 73.75 | 1316 |
| 70.000 | 26.127 | .03828 | .03288 | 43.1723 | 787.311 | 264.5 | 283.7 | 96.389 | 48.53 | 72.80 | 1289 |
| 80.000 | 25.573 | .03910 | .02939 | 37.5551 | 671.097 | 983.2 | 1002.8 | 105.981 | 45.30 | 71.01 | 1217 |
| 90.000 | 25.007 | .03999 | .02672 | 32.8323 | 574.234 | 1688.6 | 1708.6 | 114.288 | 43.15 | 70.16 | 1146 |
| 100.000 | 24.429 | .04094 | .02462 | 28.7911 | 492.106 | 2388.0 | 2408.5 | 121.666 | 41.75 | 69.97 | 1077 |
| 110.000 | 23.836 | .04195 | .02294 | 25.2859 | 421.467 | 3087.5 | 3108.5 | 128.344 | 40.85 | 70.22 | 1010 |
| 120.000 | 23.228 | .04305 | .02157 | 22.2115 | 359.949 | 3791.6 | 3813.1 | 134.477 | 40.32 | 70.80 | 943 |
| 130.000 | 22.601 | .04425 | .02047 | 19.4896 | 305.784 | 4503.5 | 4525.6 | 140.177 | 40.06 | 71.67 | 877 |
| 140.000 | 21.952 | .04555 | .01957 | 17.0593 | 257.628 | 5225.9 | 5248.6 | 145.528 | 40.01 | 72.83 | 812 |
| 150.000 | 21.275 | .04700 | .01884 | 14.8714 | 214.446 | 5961.3 | 5984.8 | 150.603 | 40.17 | 74.34 | 747 |
| 160.000 | 20.562 | .04863 | .01828 | 12.8848 | 175.434 | 6713.3 | 6737.6 | 155.461 | 40.51 | 76.32 | 682 |
| 170.000 | 19.801 | .05050 | .01786 | 11.0633 | 139.950 | 7487.2 | 7512.5 | 160.163 | 41.02 | 78.94 | 615 |
| 171.774 | 19.660 | .05087 | .01781 | 10.7548 | 133.984 | 7627.4 | 7652.8 | 160.984 | 41.12 | 79.49 | 603 |
| 171.774 | .39430 | 2.536 | .88788 | .036431 | 11.152 | 16562.0 | 17830.1 | 220.232 | 33.17 | 46.32 | 148 |
| 180.000 | .36967 | 2.705 | .90376 | .033497 | 12.172 | 16855.1 | 18207.7 | 222.377 | 33.46 | 45.60 | 152 |
| 190.000 | .34449 | 2.903 | .91877 | .030759 | 13.323 | 17211.6 | 18663.0 | 224.839 | 34.19 | 45.56 | 158 |
| 200.000 | .32311 | 3.095 | .93058 | .028561 | 14.413 | 17572.8 | 19120.2 | 227.184 | 35.09 | 45.93 | 163 |
| 210.000 | .30461 | 3.283 | .94010 | .026726 | 15.460 | 17941.0 | 19582.5 | 229.439 | 36.08 | 46.54 | 167 |
| 220.000 | .28836 | 3.468 | .94791 | .025155 | 16.475 | 18317.5 | 20051.4 | 231.620 | 37.11 | 47.28 | 171 |
| 230.000 | .27395 | 3.650 | .95442 | .023787 | 17.466 | 18703.1 | 20528.3 | 233.740 | 38.17 | 48.10 | 176 |
| 240.000 | .26103 | 3.831 | .95990 | .022580 | 18.437 | 19098.2 | 21013.6 | 235.806 | 39.24 | 48.98 | 180 |
| 250.000 | .24938 | 4.010 | .96456 | .021503 | 19.392 | 19503.0 | 21507.9 | 237.823 | 40.30 | 49.89 | 183 |
| 260.000 | .23880 | 4.188 | .96855 | .020535 | 20.335 | 19917.7 | 22011.4 | 239.798 | 41.36 | 50.81 | 187 |
| 270.000 | .22914 | 4.364 | .97201 | .019658 | 21.266 | 20342.2 | 22524.2 | 241.733 | 42.40 | 51.74 | 191 |
| 280.000 | .22028 | 4.540 | .97500 | .018859 | 22.188 | 20776.4 | 23046.3 | 243.632 | 43.42 | 52.67 | 194 |
| 290.000 | .21211 | 4.715 | .97763 | .018126 | 23.101 | 21220.4 | 23577.6 | 245.496 | 44.42 | 53.59 | 198 |
| 300.000 | .20456 | 4.889 | .97993 | .017453 | 24.008 | 21673.8 | 24118.1 | 247.328 | 45.40 | 54.49 | 201 |
| 310.000 | .19755 | 5.062 | .98196 | .016831 | 24.908 | 22136.4 | 24667.4 | 249.129 | 46.35 | 55.38 | 204 |
| 320.000 | .19103 | 5.235 | .98376 | .016254 | 25.803 | 22608.2 | 25225.6 | 250.901 | 47.27 | 56.25 | 207 |
| 330.000 | .18494 | 5.407 | .98537 | .015717 | 26.693 | 23088.7 | 25792.3 | 252.645 | 48.16 | 57.09 | 211 |
| 340.000 | .17924 | 5.579 | .98680 | .015216 | 27.579 | 23577.7 | 26367.3 | 254.362 | 49.03 | 57.91 | 214 |
| 350.000 | .17389 | 5.751 | .98808 | .014748 | 28.461 | 24075.1 | 26950.5 | 256.052 | 49.86 | 58.71 | 217 |
| 360.000 | .16886 | 5.922 | .98923 | .014308 | 29.340 | 24580.5 | 27541.5 | 257.717 | 50.67 | 59.48 | 220 |
| 370.000 | .16413 | 6.093 | .99026 | .013895 | 30.215 | 25093.6 | 28140.0 | 259.357 | 51.45 | 60.23 | 223 |
| 380.000 | .15966 | 6.263 | .99120 | .013507 | 31.088 | 25614.3 | 28746.0 | 260.973 | 52.20 | 60.95 | 226 |
| 390.000 | .15543 | 6.434 | .99204 | .013140 | 31.958 | 26142.1 | 29359.0 | 262.565 | 52.93 | 61.65 | 228 |
| 400.000 | .15143 | 6.604 | .99281 | .012793 | 32.826 | 26677.0 | 29978.9 | 264.134 | 53.63 | 62.32 | 231 |
| 410.000 | .14763 | 6.774 | .99351 | .012464 | 33.691 | 27218.6 | 30605.4 | 265.681 | 54.30 | 62.97 | 234 |
| 420.000 | .14402 | 6.943 | .99414 | .012153 | 34.555 | 27766.6 | 31238.2 | 267.206 | 54.94 | 63.60 | 237 |
| 430.000 | .14059 | 7.113 | .99472 | .011857 | 35.417 | 28320.9 | 31877.3 | 268.710 | 55.57 | 64.20 | 240 |
| 440.000 | .13732 | 7.282 | .99525 | .011575 | 36.277 | 28881.2 | 32522.2 | 270.193 | 56.16 | 64.78 | 242 |
| 450.000 | .13421 | 7.451 | .99573 | .011307 | 37.135 | 29447.3 | 33172.8 | 271.655 | 56.74 | 65.34 | 245 |
| 460.000 | .13123 | 7.620 | .99618 | .011051 | 37.992 | 30018.9 | 33829.0 | 273.097 | 57.29 | 65.88 | 248 |
| 470.000 | .12839 | 7.789 | .99658 | .010807 | 38.848 | 30595.9 | 34490.4 | 274.519 | 57.83 | 66.40 | 250 |
| 480.000 | .12567 | 7.958 | .99696 | .010574 | 39.703 | 31178.0 | 35156.9 | 275.922 | 58.34 | 66.90 | 253 |
| 490.000 | .12306 | 8.126 | .99730 | .010351 | 40.556 | 31765.1 | 35828.2 | 277.307 | 58.83 | 67.38 | 255 |
| 500.000 | .12056 | 8.295 | .99762 | .010137 | 41.409 | 32357.0 | 36504.3 | 278.673 | 59.30 | 67.84 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 6 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.463 | 26.321 | .03799 | .04125 | 45.4448 | 834.831 | 5.2 | 28.0 | 92.583 | 50.01 | 73.74 | 1316 |
| 70.000 | 26.128 | .03827 | .03946 | 43.1870 | 787.876 | 264.0 | 287.0 | 96.381 | 48.53 | 72.80 | 1290 |
| 80.000 | 25.574 | .03910 | .03527 | 37.5693 | 671.631 | 982.5 | 1006.0 | 105.972 | 45.30 | 71.00 | 1217 |
| 90.000 | 25.009 | .03999 | .03206 | 32.8461 | 574.746 | 1687.8 | 1711.8 | 114.279 | 43.15 | 70.16 | 1147 |
| 100.000 | 24.431 | .04093 | .02954 | 28.8048 | 492.603 | 2387.0 | 2411.6 | 121.656 | 41.75 | 69.97 | 1078 |
| 110.000 | 23.839 | .04195 | .02752 | 25.2995 | 421.954 | 3086.3 | 3111.5 | 128.333 | 40.85 | 70.22 | 1010 |
| 120.000 | 23.231 | .04305 | .02589 | 22.2252 | 360.431 | 3790.2 | 3816.0 | 134.466 | 40.32 | 70.79 | 944 |
| 130.000 | 22.604 | .04424 | .02456 | 19.5036 | 306.265 | 4501.9 | 4528.4 | 140.164 | 40.05 | 71.65 | 878 |
| 140.000 | 21.956 | .04555 | .02348 | 17.0737 | 258.113 | 5223.9 | 5251.3 | 145.515 | 40.01 | 72.81 | 813 |
| 150.000 | 21.279 | .04699 | .02261 | 14.8864 | 214.938 | 5959.0 | 5987.2 | 150.587 | 40.16 | 74.32 | 748 |
| 160.000 | 20.567 | .04862 | .02193 | 12.9008 | 175.939 | 6710.5 | 6739.7 | 155.444 | 40.51 | 76.28 | 683 |
| 170.000 | 19.808 | .05048 | .02143 | 11.0806 | 140.475 | 7483.8 | 7514.1 | 160.142 | 41.01 | 78.88 | 616 |
| 175.693 | 19.347 | .05169 | .02123 | 10.1049 | 121.659 | 7937.0 | 7968.0 | 162.769 | 41.36 | 80.75 | 578 |
| | | | | | | | | | | | |
| 175.693 | .47039 | 2.126 | .87318 | .044183 | 10.987 | 16632.4 | 17907.9 | 219.345 | 33.87 | 47.98 | 148 |
| 180.000 | .45392 | 2.203 | .88320 | .042080 | 11.565 | 16791.2 | 18113.0 | 220.496 | 33.91 | 47.29 | 150 |
| 190.000 | .42102 | 2.375 | .90211 | .038245 | 12.811 | 17157.0 | 18582.2 | 223.032 | 34.46 | 46.70 | 156 |
| 200.000 | .39358 | 2.541 | .91675 | .035281 | 13.968 | 17524.7 | 19049.2 | 225.428 | 35.28 | 46.78 | 161 |
| 210.000 | .37012 | 2.702 | .92843 | .032862 | 15.068 | 17897.8 | 19518.9 | 227.720 | 36.22 | 47.20 | 166 |
| 220.000 | .34971 | 2.859 | .93795 | .030824 | 16.127 | 18278.2 | 19993.9 | 229.929 | 37.22 | 47.82 | 170 |
| 230.000 | .33172 | 3.015 | .94583 | .029069 | 17.153 | 18667.0 | 20475.7 | 232.071 | 38.26 | 48.56 | 175 |
| 240.000 | .31569 | 3.168 | .95245 | .027533 | 18.155 | 19064.7 | 20965.3 | 234.154 | 39.31 | 49.37 | 179 |
| 250.000 | .30129 | 3.319 | .95805 | .026174 | 19.137 | 19471.8 | 21463.2 | 236.187 | 40.36 | 50.22 | 183 |
| 260.000 | .28826 | 3.469 | .96284 | .024958 | 20.102 | 19888.4 | 21969.8 | 238.174 | 41.41 | 51.11 | 186 |
| 270.000 | .27640 | 3.618 | .96697 | .023863 | 21.054 | 20314.6 | 22485.4 | 240.119 | 42.45 | 52.00 | 190 |
| 280.000 | .26555 | 3.766 | .97055 | .022868 | 21.994 | 20750.4 | 23009.9 | 242.027 | 43.46 | 52.90 | 194 |
| 290.000 | .25557 | 3.913 | .97367 | .021960 | 22.924 | 21195.7 | 23543.5 | 243.899 | 44.46 | 53.80 | 197 |
| 300.000 | .24635 | 4.059 | .97642 | .021127 | 23.845 | 21650.4 | 24085.9 | 245.738 | 45.43 | 54.68 | 201 |
| 310.000 | .23782 | 4.205 | .97883 | .020359 | 24.759 | 22114.1 | 24637.1 | 247.545 | 46.38 | 55.55 | 204 |
| 320.000 | .22988 | 4.350 | .98097 | .019649 | 25.666 | 22586.9 | 25196.9 | 249.322 | 47.30 | 56.40 | 207 |
| 330.000 | .22249 | 4.495 | .98287 | .018990 | 26.568 | 23068.3 | 25765.1 | 251.071 | 48.19 | 57.24 | 210 |
| 340.000 | .21557 | 4.639 | .98456 | .018375 | 27.464 | 23558.3 | 26341.5 | 252.791 | 49.05 | 58.05 | 213 |
| 350.000 | .20909 | 4.783 | .98608 | .017802 | 28.356 | 24056.4 | 26926.0 | 254.486 | 49.89 | 58.83 | 217 |
| 360.000 | .20300 | 4.926 | .98744 | .017265 | 29.243 | 24562.5 | 27518.1 | 256.154 | 50.69 | 59.60 | 220 |
| 370.000 | .19727 | 5.069 | .98866 | .016761 | 30.127 | 25076.4 | 28117.8 | 257.797 | 51.47 | 60.34 | 223 |
| 380.000 | .19187 | 5.212 | .98976 | .016286 | 31.007 | 25597.6 | 28724.8 | 259.415 | 52.22 | 61.05 | 225 |
| 390.000 | .18676 | 5.354 | .99076 | .015839 | 31.884 | 26126.1 | 29338.8 | 261.010 | 52.95 | 61.74 | 228 |
| 400.000 | .18192 | 5.497 | .99167 | .015417 | 32.759 | 26661.5 | 29959.6 | 262.582 | 53.64 | 62.41 | 231 |
| 410.000 | .17734 | 5.639 | .99249 | .015017 | 33.631 | 27203.6 | 30587.0 | 264.131 | 54.31 | 63.06 | 234 |
| 420.000 | .17299 | 5.781 | .99323 | .014638 | 34.500 | 27752.2 | 31220.6 | 265.658 | 54.96 | 63.68 | 237 |
| 430.000 | .16885 | 5.922 | .99392 | .014279 | 35.368 | 28306.9 | 31860.4 | 267.163 | 55.58 | 64.28 | 240 |
| 440.000 | .16491 | 6.064 | .99454 | .013937 | 36.233 | 28867.7 | 32506.1 | 268.648 | 56.18 | 64.85 | 242 |
| 450.000 | .16115 | 6.205 | .99511 | .013612 | 37.096 | 29434.2 | 33157.4 | 270.111 | 56.75 | 65.41 | 245 |
| 460.000 | .15756 | 6.347 | .99563 | .013302 | 37.958 | 30006.2 | 33814.2 | 271.555 | 57.31 | 65.94 | 248 |
| 470.000 | .15414 | 6.488 | .99611 | .013006 | 38.819 | 30583.6 | 34476.2 | 272.979 | 57.84 | 66.46 | 250 |
| 480.000 | .15086 | 6.629 | .99655 | .012723 | 39.677 | 31166.1 | 35143.3 | 274.383 | 58.35 | 66.95 | 253 |
| 490.000 | .14772 | 6.769 | .99695 | .012453 | 40.535 | 31753.5 | 35815.2 | 275.768 | 58.84 | 67.43 | 255 |
| 500.000 | .14471 | 6.910 | .99732 | .012194 | 41.391 | 32345.7 | 36491.8 | 277.135 | 59.31 | 67.89 | 258 |

Table 15. Continued.



NITROGEN TRIFLUORIDE ISOBAR AT 7 BAR

NITROGEN TRIFLUORIDE ISOBAR AT 7 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.481 | 26.321 | .03799 | .04811 | 45.4474 | 835.151 | 6.0 | 32.6 | 92.595 | 50.00 | 73.73 | 1317 |
| 70.000 | 26.129 | .03827 | .04603 | 43.2017 | 788.441 | 263.4 | 290.2 | 96.373 | 48.53 | 72.80 | 1290 |
| 80.000 | 25.576 | .03910 | .04115 | 37.5834 | 672.165 | 981.9 | 1009.2 | 105.964 | 45.30 | 71.00 | 1218 |
| 90.000 | 25.011 | .03998 | .03740 | 32.8598 | 575.258 | 1687.0 | 1715.0 | 114.270 | 43.15 | 70.15 | 1147 |
| 100.000 | 24.433 | .04093 | .03446 | 28.8184 | 493.099 | 2386.1 | 2414.7 | 121.646 | 41.74 | 69.96 | 1078 |
| 110.000 | 23.841 | .04194 | .03210 | 25.3130 | 422.440 | 3085.2 | 3114.5 | 128.323 | 40.85 | 70.21 | 1011 |
| 120.000 | 23.234 | .04304 | .03020 | 22.2390 | 360.912 | 3788.8 | 3818.9 | 134.454 | 40.32 | 70.78 | 944 |
| 130.000 | 22.608 | .04423 | .02865 | 19.5176 | 306.746 | 4500.3 | 4531.2 | 140.152 | 40.05 | 71.64 | 879 |
| 140.000 | 21.960 | .04554 | .02738 | 17.0881 | 258.597 | 5222.0 | 5253.9 | 145.501 | 40.01 | 72.79 | 814 |
| 150.000 | 21.284 | .04698 | .02637 | 14.9014 | 215.430 | 5956.7 | 5989.6 | 150.572 | 40.16 | 74.29 | 749 |
| 160.000 | 20.573 | .04861 | .02558 | 12.9167 | 176.444 | 6707.7 | 6741.7 | 155.426 | 40.50 | 76.25 | 683 |
| 170.000 | 19.815 | .05047 | .02499 | 11.0978 | 140.999 | 7480.4 | 7515.7 | 160.122 | 41.01 | 78.83 | 617 |
| 179.157 | 19.064 | .05246 | .02465 | 9.5480 | 111.199 | 8213.9 | 8250.7 | 164.334 | 41.58 | 82.00 | 555 |
| 179.157 | .54689 | 1.829 | .85927 | .052189 | 10.799 | 16690.3 | 17970.3 | 218.586 | 34.52 | 49.63 | 147 |
| 180.000 | .54286 | 1.842 | .86159 | .051635 | 10.922 | 16722.7 | 18012.1 | 218.817 | 34.50 | 49.41 | 148 |
| 190.000 | .50073 | 1.997 | .88492 | .046329 | 12.279 | 17099.9 | 18497.9 | 221.443 | 34.78 | 48.02 | 154 |
| 200.000 | .46636 | 2.144 | .90264 | .042420 | 13.513 | 17475.1 | 18976.1 | 223.896 | 35.49 | 47.73 | 160 |
| 210.000 | .43738 | 2.286 | .91662 | .039311 | 14.671 | 17853.7 | 19454.1 | 226.228 | 36.37 | 47.93 | 165 |
| 220.000 | .41241 | 2.425 | .92792 | .036735 | 15.775 | 18238.3 | 19935.6 | 228.468 | 37.34 | 48.40 | 169 |
| 230.000 | .39056 | 2.560 | .93724 | .034544 | 16.839 | 18630.4 | 20422.7 | 230.633 | 38.35 | 49.04 | 174 |
| 240.000 | .37121 | 2.694 | .94501 | .032646 | 17.873 | 19030.9 | 20916.7 | 232.736 | 39.39 | 49.77 | 178 |
| 250.000 | .35390 | 2.826 | .95158 | .030977 | 18.882 | 19440.4 | 21418.4 | 234.783 | 40.43 | 50.57 | 182 |
| 260.000 | .33830 | 2.956 | .95717 | .029493 | 19.871 | 19859.1 | 21928.3 | 236.783 | 41.47 | 51.41 | 186 |
| 270.000 | .32414 | 3.085 | .96199 | .028162 | 20.844 | 20287.1 | 22446.7 | 238.740 | 42.49 | 52.27 | 190 |
| 280.000 | .31121 | 3.213 | .96615 | .026959 | 21.802 | 20724.5 | 22973.7 | 240.656 | 43.50 | 53.14 | 193 |
| 290.000 | .29936 | 3.340 | .96978 | .025864 | 22.749 | 21171.1 | 23509.5 | 242.536 | 44.50 | 54.01 | 197 |
| 300.000 | .28843 | 3.467 | .97296 | .024863 | 23.685 | 21627.0 | 24053.9 | 244.382 | 45.46 | 54.88 | 200 |
| 310.000 | .27833 | 3.593 | .97576 | .023942 | 24.613 | 22092.0 | 24607.0 | 246.195 | 46.41 | 55.73 | 204 |
| 320.000 | .26895 | 3.718 | .97823 | .023092 | 25.532 | 22565.7 | 25168.4 | 247.978 | 47.32 | 56.56 | 207 |
| 330.000 | .26021 | 3.843 | .98043 | .022305 | 26.445 | 23048.1 | 25738.2 | 249.731 | 48.21 | 57.38 | 210 |
| 340.000 | .25206 | 3.967 | .98238 | .021573 | 27.352 | 23538.9 | 26316.0 | 251.456 | 49.08 | 58.18 | 213 |
| 350.000 | .24442 | 4.091 | .98413 | .020891 | 28.253 | 24037.9 | 26901.8 | 253.153 | 49.91 | 58.96 | 216 |
| 360.000 | .23725 | 4.215 | .98570 | .020252 | 29.149 | 24544.7 | 27495.1 | 254.825 | 50.71 | 59.71 | 219 |
| 370.000 | .23051 | 4.338 | .98711 | .019654 | 30.041 | 25059.3 | 28096.0 | 256.471 | 51.49 | 60.44 | 222 |
| 380.000 | .22416 | 4.461 | .98838 | .019091 | 30.929 | 25581.2 | 28704.0 | 258.093 | 52.24 | 61.15 | 225 |
| 390.000 | .21816 | 4.584 | .98953 | .018561 | 31.814 | 26110.3 | 29318.9 | 259.690 | 52.96 | 61.84 | 228 |
| 400.000 | .21248 | 4.706 | .99057 | .018062 | 32.695 | 26646.2 | 29940.7 | 261.264 | 53.66 | 62.50 | 231 |
| 410.000 | .20710 | 4.829 | .99151 | .017589 | 33.573 | 27188.9 | 30568.9 | 262.815 | 54.33 | 63.14 | 234 |
| 420.000 | .20199 | 4.951 | .99237 | .017142 | 34.448 | 27737.9 | 31203.3 | 264.344 | 54.97 | 63.75 | 237 |
| 430.000 | .19714 | 5.072 | .99315 | .016717 | 35.321 | 28293.1 | 31843.9 | 265.851 | 55.59 | 64.35 | 239 |
| 440.000 | .19252 | 5.194 | .99386 | .016314 | 36.192 | 28854.3 | 32490.3 | 267.337 | 56.19 | 64.92 | 242 |
| 450.000 | .18812 | 5.316 | .99452 | .015930 | 37.060 | 29421.2 | 33142.3 | 268.802 | 56.77 | 65.47 | 245 |
| 460.000 | .18392 | 5.437 | .99511 | .015565 | 37.927 | 29993.7 | 33799.7 | 270.247 | 57.32 | 66.00 | 248 |
| 470.000 | .17991 | 5.558 | .99566 | .015217 | 38.791 | 30571.4 | 34462.3 | 271.672 | 57.85 | 66.52 | 250 |
| 480.000 | .17607 | 5.680 | .99617 | .014884 | 39.654 | 31154.3 | 35129.9 | 273.078 | 58.36 | 67.01 | 253 |
| 490.000 | .17240 | 5.801 | .99663 | .014566 | 40.516 | 31742.0 | 35802.4 | 274.464 | 58.85 | 67.48 | 255 |
| 500.000 | .16888 | 5.921 | .99705 | .014261 | 41.375 | 32334.5 | 36479.6 | 275.832 | 59.32 | 67.94 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 8 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.500 | 26.321 | .03799 | .05497 | 45.4500 | 835.472 | 6.9 | 37.3 | 92.608 | 49.99 | 73.72 | 1317 |
| 70.000 | 26.130 | .03827 | .05260 | 43.2165 | 789.006 | 262.9 | 293.5 | 96.365 | 48.53 | 72.79 | 1291 |
| 80.000 | 25.577 | .03910 | .04702 | 37.5975 | 672.698 | 981.2 | 1012.5 | 105.955 | 45.30 | 70.99 | 1218 |
| 90.000 | 25.012 | .03998 | .04274 | 32.8736 | 575.770 | 1686.1 | 1718.1 | 114.261 | 43.15 | 70.15 | 1148 |
| 100.000 | 24.435 | .04093 | .03938 | 28.8320 | 493.596 | 2385.1 | 2417.8 | 121.637 | 41.74 | 69.95 | 1079 |
| 110.000 | 23.844 | .04194 | .03669 | 25.3266 | 422.927 | 3084.0 | 3117.6 | 128.312 | 40.85 | 70.20 | 1011 |
| 120.000 | 23.236 | .04304 | .03451 | 22.2526 | 361.393 | 3787.5 | 3821.9 | 134.443 | 40.32 | 70.77 | 945 |
| 130.000 | 22.611 | .04423 | .03273 | 19.5315 | 307.226 | 4498.7 | 4534.0 | 140.139 | 40.05 | 71.63 | 879 |
| 140.000 | 21.963 | .04553 | .03129 | 17.1024 | 259.080 | 5220.1 | 5256.5 | 145.487 | 40.01 | 72.77 | 814 |
| 150.000 | 21.289 | .04697 | .03013 | 14.9164 | 215.922 | 5954.4 | 5992.0 | 150.557 | 40.16 | 74.27 | 749 |
| 160.000 | 20.579 | .04859 | .02922 | 12.9326 | 176.948 | 6705.0 | 6743.8 | 155.409 | 40.50 | 76.21 | 684 |
| 170.000 | 19.822 | .05045 | .02855 | 11.1149 | 141.522 | 7477.0 | 7517.4 | 160.102 | 41.00 | 78.77 | 618 |
| 180.000 | 19.000 | .05263 | .02813 | 9.4289 | 109.119 | 8278.6 | 8320.7 | 164.698 | 41.63 | 82.25 | 551 |
| 182.275 | 18.801 | .05319 | .02808 | 9.0600 | 102.122 | 8466.3 | 8508.8 | 165.734 | 41.78 | 83.23 | 535 |
| | | | | | | | | | | | |
| 182.275 | .62398 | 1.603 | .84597 | .060464 | 10.593 | 16738.6 | 18020.7 | 217.918 | 35.13 | 51.29 | 147 |
| 190.000 | .58405 | 1.712 | .86706 | .055112 | 11.725 | 17039.8 | 18409.5 | 220.305 | 35.15 | 49.58 | 152 |
| 200.000 | .54166 | 1.846 | .88817 | .050028 | 13.045 | 17423.7 | 18900.6 | 222.524 | 35.72 | 48.80 | 158 |
| 210.000 | .50649 | 1.974 | .90461 | .046100 | 14.266 | 17808.3 | 19387.8 | 224.901 | 36.53 | 48.73 | 163 |
| 220.000 | .47652 | 2.099 | .91780 | .042906 | 15.419 | 18197.6 | 19876.4 | 227.174 | 37.46 | 49.03 | 168 |
| 230.000 | .45051 | 2.220 | .92859 | .040224 | 16.523 | 18593.4 | 20369.1 | 229.364 | 38.45 | 49.55 | 173 |
| 240.000 | .42760 | 2.339 | .93757 | .037923 | 17.590 | 18996.9 | 20867.8 | 231.486 | 39.47 | 50.20 | 177 |
| 250.000 | .40722 | 2.456 | .94512 | .035915 | 18.627 | 19408.8 | 21373.4 | 233.550 | 40.49 | 50.93 | 181 |
| 260.000 | .38891 | 2.571 | .95154 | .034141 | 19.641 | 19829.6 | 21886.6 | 235.563 | 41.52 | 51.72 | 185 |
| 270.000 | .37236 | 2.686 | .95704 | .032558 | 20.634 | 20259.5 | 22408.0 | 237.531 | 42.54 | 52.55 | 189 |
| 280.000 | .35728 | 2.799 | .96180 | .031132 | 21.612 | 20698.5 | 22937.6 | 239.457 | 43.55 | 53.38 | 193 |
| 290.000 | .34348 | 2.911 | .96594 | .029839 | 22.575 | 21146.6 | 23475.7 | 241.345 | 44.53 | 54.23 | 196 |
| 300.000 | .33080 | 3.023 | .96956 | .028661 | 23.527 | 21603.8 | 24022.2 | 243.197 | 45.50 | 55.07 | 200 |
| 310.000 | .31908 | 3.134 | .97274 | .027580 | 24.468 | 22069.9 | 24577.1 | 245.017 | 46.44 | 55.90 | 203 |
| 320.000 | .30822 | 3.244 | .97555 | .026584 | 25.400 | 22544.7 | 25140.2 | 246.805 | 47.35 | 56.73 | 207 |
| 330.000 | .29812 | 3.354 | .97804 | .025664 | 26.324 | 23028.0 | 25711.5 | 248.563 | 48.24 | 57.53 | 210 |
| 340.000 | .28869 | 3.464 | .98025 | .024809 | 27.241 | 23519.7 | 26290.8 | 250.292 | 49.10 | 58.32 | 213 |
| 350.000 | .27988 | 3.573 | .98223 | .024013 | 28.152 | 24019.5 | 26877.8 | 251.993 | 49.93 | 59.08 | 216 |
| 360.000 | .27162 | 3.682 | .98400 | .023270 | 29.057 | 24527.1 | 27472.4 | 253.668 | 50.74 | 59.83 | 219 |
| 370.000 | .26385 | 3.790 | .98560 | .022574 | 29.958 | 25042.3 | 28074.3 | 255.317 | 51.51 | 60.55 | 222 |
| 380.000 | .25653 | 3.898 | .98703 | .021921 | 30.853 | 25564.9 | 28683.4 | 256.942 | 52.26 | 61.25 | 225 |
| 390.000 | .24962 | 4.006 | .98833 | .021307 | 31.745 | 26094.5 | 29299.3 | 258.541 | 52.98 | 61.93 | 228 |
| 400.000 | .24310 | 4.114 | .98950 | .020728 | 32.633 | 26631.1 | 29922.0 | 260.118 | 53.68 | 62.59 | 231 |
| 410.000 | .23691 | 4.221 | .99057 | .020180 | 33.517 | 27174.2 | 30551.0 | 261.671 | 54.35 | 63.22 | 234 |
| 420.000 | .23104 | 4.328 | .99154 | .019662 | 34.398 | 27723.8 | 31186.3 | 263.202 | 54.99 | 63.83 | 237 |
| 430.000 | .22547 | 4.435 | .99242 | .019172 | 35.277 | 28279.5 | 31827.6 | 264.711 | 55.61 | 64.42 | 239 |
| 440.000 | .22017 | 4.542 | .99322 | .018706 | 36.152 | 28841.1 | 32474.7 | 266.198 | 56.21 | 64.99 | 242 |
| 450.000 | .21512 | 4.649 | .99396 | .018263 | 37.026 | 29408.4 | 33127.4 | 267.665 | 56.78 | 65.54 | 245 |
| 460.000 | .21030 | 4.755 | .99463 | .017841 | 37.897 | 29981.3 | 33785.4 | 269.111 | 57.33 | 66.07 | 248 |
| 470.000 | .20570 | 4.862 | .99524 | .017439 | 38.766 | 30559.4 | 34448.6 | 270.538 | 57.86 | 66.58 | 250 |
| 480.000 | .20130 | 4.968 | .99581 | .017055 | 39.633 | 31142.6 | 35116.8 | 271.945 | 58.37 | 67.07 | 253 |
| 490.000 | .19709 | 5.074 | .99633 | .016688 | 40.498 | 31730.7 | 35789.9 | 273.332 | 58.86 | 67.54 | 255 |

NITROGEN TRIFLUORIDE ISOBAR AT 10 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 10 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.538 | 26.322 | .03799 | .06867 | 45.4552 | 836.112 | 8.6 | 46.6 | 92.634 | 49.97 | 73.71 | 1317 |
| 70.000 | 26.133 | .03827 | .06575 | 43.2459 | 790.136 | 261.7 | 300.0 | 96.349 | 48.53 | 72.79 | 1291 |
| 80.000 | 25.580 | .03909 | .05877 | 37.6258 | 673.766 | 979.8 | 1018.9 | 105.938 | 45.30 | 70.98 | 1219 |
| 90.000 | 25.016 | .03997 | .05342 | 32.9012 | 576.793 | 1684.5 | 1724.5 | 114.242 | 43.15 | 70.14 | 1149 |
| 100.000 | 24.439 | .04092 | .04921 | 28.8592 | 494.588 | 2383.1 | 2424.1 | 121.617 | 41.74 | 69.94 | 1080 |
| 110.000 | 23.848 | .04193 | .04585 | 25.3538 | 423.899 | 3081.7 | 3123.6 | 128.291 | 40.85 | 70.18 | 1012 |
| 120.000 | 23.242 | .04303 | .04312 | 22.2800 | 362.355 | 3784.7 | 3827.8 | 134.420 | 40.32 | 70.75 | 946 |
| 130.000 | 22.617 | .04421 | .04090 | 19.5594 | 308.186 | 4495.4 | 4539.6 | 140.114 | 40.05 | 71.60 | 880 |
| 140.000 | 21.971 | .04551 | .03910 | 17.1311 | 260.047 | 5216.3 | 5261.8 | 145.460 | 40.00 | 72.73 | 816 |
| 150.000 | 21.298 | .04695 | .03765 | 14.9463 | 216.904 | 5949.9 | 5996.8 | 150.526 | 40.15 | 74.21 | 751 |
| 160.000 | 20.590 | .04857 | .03651 | 12.9643 | 177.955 | 6699.5 | 6748.0 | 155.374 | 40.49 | 76.14 | 686 |
| 170.000 | 19.836 | .05041 | .03567 | 11.1491 | 142.565 | 7470.3 | 7520.7 | 160.062 | 40.99 | 78.66 | 620 |
| 180.000 | 19.018 | .05258 | .03513 | 9.4669 | 110.216 | 8270.0 | 8322.6 | 164.650 | 41.61 | 82.08 | 553 |
| 187.741 | 18.322 | .05458 | .03497 | 8.2324 | 86.966 | 8916.6 | 8971.2 | 168.176 | 42.14 | 85.73 | 499 |
| | | | | | | | | | | | |
| 187.741 | .78053 | 1.281 | .82075 | .077881 | 10.144 | 16813.6 | 18094.8 | 216.773 | 36.28 | 54.71 | 146 |
| 190.000 | .76379 | 1.309 | .82877 | .075369 | 10.528 | 16908.2 | 18217.5 | 217.419 | 36.15 | 53.72 | 148 |
| 200.000 | .70099 | 1.427 | .85787 | .066896 | 12.062 | 17314.4 | 18741.0 | 220.105 | 36.28 | 51.38 | 155 |
| 210.000 | .65094 | 1.536 | .87984 | .060829 | 13.428 | 17713.7 | 19250.0 | 222.588 | 36.91 | 50.57 | 160 |
| 220.000 | .60938 | 1.641 | .89712 | .056102 | 14.690 | 18113.6 | 19754.6 | 224.936 | 37.74 | 50.43 | 166 |
| 230.000 | .57396 | 1.742 | .91108 | .052245 | 15.880 | 18517.5 | 20259.8 | 227.181 | 38.66 | 50.66 | 171 |
| 240.000 | .54319 | 1.841 | .92257 | .049004 | 17.018 | 18927.6 | 20768.6 | 229.347 | 39.64 | 51.11 | 175 |
| 250.000 | .51609 | 1.938 | .93217 | .046221 | 18.114 | 19344.9 | 21282.6 | 231.445 | 40.64 | 51.71 | 180 |
| 260.000 | .49196 | 2.033 | .94029 | .043793 | 19.179 | 19770.3 | 21803.0 | 233.486 | 41.64 | 52.38 | 184 |
| 270.000 | .47027 | 2.126 | .94721 | .041648 | 20.217 | 20204.0 | 22330.4 | 235.476 | 42.65 | 53.12 | 188 |
| 280.000 | .45064 | 2.219 | .95317 | .039733 | 21.233 | 20646.4 | 22865.5 | 237.422 | 43.64 | 53.89 | 192 |
| 290.000 | .43276 | 2.311 | .95834 | .038009 | 22.231 | 21097.5 | 23408.3 | 239.327 | 44.61 | 54.68 | 195 |
| 300.000 | .41638 | 2.402 | .96284 | .036446 | 23.214 | 21557.4 | 23959.0 | 241.194 | 45.57 | 55.47 | 199 |
| 310.000 | .40130 | 2.492 | .96679 | .035021 | 24.183 | 22025.8 | 24517.7 | 243.026 | 46.50 | 56.27 | 203 |
| 320.000 | .38736 | 2.582 | .97027 | .033714 | 25.140 | 22502.8 | 25084.3 | 244.825 | 47.41 | 57.05 | 206 |
| 330.000 | .37444 | 2.671 | .97335 | .032509 | 26.087 | 22988.1 | 25658.8 | 246.592 | 48.29 | 57.83 | 209 |
| 340.000 | .36241 | 2.759 | .97609 | .031396 | 27.025 | 23481.5 | 26240.9 | 248.330 | 49.15 | 58.59 | 213 |
| 350.000 | .35117 | 2.848 | .97853 | .030362 | 27.955 | 23982.9 | 26830.5 | 250.039 | 49.98 | 59.34 | 216 |
| 360.000 | .34066 | 2.935 | .98071 | .029399 | 28.878 | 24492.1 | 27427.6 | 251.721 | 50.78 | 60.06 | 219 |
| 370.000 | .33079 | 3.023 | .98267 | .028499 | 29.795 | 25008.7 | 28031.7 | 253.376 | 51.55 | 60.77 | 222 |
| 380.000 | .32151 | 3.110 | .98443 | .027657 | 30.706 | 25532.6 | 28642.9 | 255.006 | 52.30 | 61.46 | 225 |
| 390.000 | .31276 | 3.197 | .98602 | .026866 | 31.612 | 26063.4 | 29260.8 | 256.611 | 53.02 | 62.12 | 228 |
| 400.000 | .30450 | 3.284 | .98746 | .026121 | 32.513 | 26601.1 | 29885.2 | 258.192 | 53.71 | 62.76 | 231 |
| 410.000 | .29668 | 3.371 | .98876 | .025419 | 33.410 | 27145.3 | 30516.0 | 259.749 | 54.38 | 63.39 | 234 |
| 420.000 | .28927 | 3.457 | .98995 | .024756 | 34.303 | 27695.9 | 31152.9 | 261.284 | 55.02 | 63.99 | 237 |
| 430.000 | .28224 | 3.543 | .99102 | .024128 | 35.192 | 28252.5 | 31795.7 | 262.796 | 55.64 | 64.57 | 239 |
| 440.000 | .27555 | 3.629 | .99201 | .023533 | 36.078 | 28815.0 | 32444.2 | 264.287 | 56.23 | 65.13 | 242 |
| 450.000 | .26918 | 3.715 | .99290 | .022968 | 36.961 | 29383.2 | 33098.2 | 265.757 | 56.80 | 65.67 | 245 |
| 460.000 | .26311 | 3.801 | .99372 | .022430 | 37.841 | 29956.8 | 33757.5 | 267.206 | 57.36 | 66.19 | 248 |
| 470.000 | .25732 | 3.886 | .99447 | .021918 | 38.719 | 30535.7 | 34421.9 | 268.635 | 57.88 | 66.69 | 250 |
| 480.000 | .25178 | 3.972 | .99516 | .021430 | 39.594 | 31119.6 | 35091.2 | 270.044 | 58.39 | 67.18 | 253 |
| 490.000 | .24649 | 4.057 | .99579 | .020964 | 40.467 | 31708.4 | 35765.3 | 271.434 | 58.88 | 67.64 | 255 |
| 500.000 | .24142 | 4.142 | .99637 | .020518 | 41.338 | 32301.8 | 36444.0 | 272.805 | 59.35 | 68.09 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 12 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.575 | 26.322 | .03799 | .08236 | 45.4604 | 836.753 | 10.3 | 55.9 | 92.660 | 49.96 | 73.69 | 1318 |
| 70.000 | 26.135 | .03826 | .07889 | 43.2753 | 791.266 | 260.6 | 306.5 | 96.333 | 48.52 | 72.78 | 1292 |
| 80.000 | 25.583 | .03909 | .07052 | 37.6540 | 674.834 | 978.5 | 1025.4 | 105.921 | 45.29 | 70.98 | 1220 |
| 90.000 | 25.019 | .03997 | .06410 | 32.9287 | 577.816 | 1682.9 | 1730.8 | 114.224 | 43.15 | 70.13 | 1150 |
| 100.000 | 24.443 | .04091 | .05905 | 28.8863 | 495.580 | 2381.2 | 2430.3 | 121.598 | 41.74 | 69.92 | 1081 |
| 110.000 | 23.853 | .04192 | .05501 | 25.3808 | 424.871 | 3079.4 | 3129.7 | 128.270 | 40.85 | 70.16 | 1013 |
| 120.000 | 23.247 | .04302 | .05174 | 22.3073 | 363.317 | 3782.0 | 3833.6 | 134.397 | 40.31 | 70.73 | 947 |
| 130.000 | 22.624 | .04420 | .04907 | 19.5872 | 309.146 | 4492.2 | 4545.3 | 140.090 | 40.05 | 71.57 | 882 |
| 140.000 | 21.979 | .04550 | .04690 | 17.1598 | 261.013 | 5212.5 | 5267.1 | 145.433 | 40.00 | 72.69 | 817 |
| 150.000 | 21.307 | .04693 | .04516 | 14.9762 | 217.884 | 5945.3 | 6001.7 | 150.496 | 40.15 | 74.16 | 752 |
| 160.000 | 20.601 | .04854 | .04379 | 12.9958 | 178.960 | 6694.0 | 6752.3 | 155.340 | 40.49 | 76.06 | 688 |
| 170.000 | 19.850 | .05038 | .04277 | 11.1831 | 143.606 | 7463.6 | 7524.0 | 160.023 | 40.98 | 78.56 | 622 |
| 180.000 | 19.036 | .05253 | .04212 | 9.5045 | 111.308 | 8261.6 | 8324.6 | 164.603 | 41.60 | 81.91 | 555 |
| 190.000 | 18.129 | .05516 | .04190 | 7.9234 | 81.612 | 9100.0 | 9166.1 | 169.152 | 42.27 | 86.75 | 485 |
| 192.461 | 17.885 | .05591 | .04193 | 7.5441 | 74.650 | 9314.5 | 9381.6 | 170.276 | 42.44 | 88.31 | 467 |
| 192.461 | .94109 | 1.063 | .79684 | .096556 | 9.657 | 16867.0 | 18142.1 | 215.794 | 37.36 | 58.34 | 145 |
| 200.000 | .87445 | 1.144 | .82524 | .086542 | 10.999 | 17194.6 | 18566.9 | 217.957 | 37.01 | 54.82 | 151 |
| 210.000 | .80497 | 1.242 | .85378 | .077365 | 12.543 | 17612.9 | 19103.6 | 220.576 | 37.36 | 52.82 | 158 |
| 220.000 | .74914 | 1.335 | .87570 | .070585 | 13.932 | 18025.6 | 19627.4 | 223.013 | 38.05 | 52.07 | 163 |
| 230.000 | .70258 | 1.423 | .89314 | .065235 | 15.219 | 18439.0 | 20147.0 | 225.323 | 38.90 | 51.93 | 169 |
| 240.000 | .66277 | 1.509 | .90734 | .060842 | 16.434 | 18856.5 | 20667.1 | 227.536 | 39.82 | 52.13 | 174 |
| 250.000 | .62811 | 1.592 | .91911 | .057134 | 17.595 | 19279.8 | 21190.3 | 229.672 | 40.79 | 52.54 | 178 |
| 260.000 | .59753 | 1.674 | .92900 | .053943 | 18.713 | 19710.1 | 21718.4 | 231.743 | 41.77 | 53.09 | 183 |
| 270.000 | .57024 | 1.754 | .93740 | .051153 | 19.798 | 20148.1 | 22252.4 | 233.759 | 42.75 | 53.73 | 187 |
| 280.000 | .54569 | 1.833 | .94459 | .048684 | 20.854 | 20594.1 | 22793.1 | 235.725 | 43.73 | 54.42 | 191 |
| 290.000 | .52342 | 1.910 | .95081 | .046478 | 21.888 | 21048.3 | 23340.9 | 237.647 | 44.70 | 55.14 | 195 |
| 300.000 | .50312 | 1.988 | .95621 | .044490 | 22.902 | 21510.9 | 23896.1 | 239.529 | 45.64 | 55.89 | 198 |
| 310.000 | .48449 | 2.064 | .96094 | .042686 | 23.900 | 21981.9 | 24458.7 | 241.374 | 46.57 | 56.64 | 202 |
| 320.000 | .46733 | 2.140 | .96510 | .041040 | 24.883 | 22461.0 | 25028.8 | 243.184 | 47.47 | 57.39 | 205 |
| 330.000 | .45145 | 2.215 | .96877 | .039529 | 25.853 | 22948.4 | 25606.5 | 244.961 | 48.35 | 58.14 | 209 |
| 340.000 | .43670 | 2.290 | .97203 | .038137 | 26.813 | 23443.6 | 26191.5 | 246.708 | 49.20 | 58.87 | 212 |
| 350.000 | .42296 | 2.364 | .97493 | .036848 | 27.762 | 23946.7 | 26783.8 | 248.425 | 50.02 | 59.59 | 215 |
| 360.000 | .41013 | 2.438 | .97752 | .035651 | 28.703 | 24457.4 | 27383.3 | 250.113 | 50.82 | 60.30 | 219 |
| 370.000 | .39810 | 2.512 | .97984 | .034535 | 29.637 | 24975.4 | 27989.8 | 251.775 | 51.59 | 60.99 | 222 |
| 380.000 | .38680 | 2.585 | .98193 | .033493 | 30.563 | 25500.6 | 28603.0 | 253.410 | 52.34 | 61.66 | 225 |
| 390.000 | .37616 | 2.658 | .98381 | .032516 | 31.483 | 26032.7 | 29222.9 | 255.020 | 53.05 | 62.31 | 228 |
| 400.000 | .36612 | 2.731 | .98551 | .031598 | 32.398 | 26571.5 | 29849.1 | 256.606 | 53.74 | 62.94 | 231 |
| 410.000 | .35663 | 2.804 | .98705 | .030734 | 33.307 | 27116.8 | 30481.6 | 258.168 | 54.41 | 63.55 | 234 |
| 420.000 | .34765 | 2.876 | .98844 | .029919 | 34.211 | 27668.3 | 31120.1 | 259.706 | 55.05 | 64.14 | 236 |
| 430.000 | .33913 | 2.949 | .98971 | .029148 | 35.112 | 28225.9 | 31764.4 | 261.222 | 55.67 | 64.71 | 239 |
| 440.000 | .33104 | 3.021 | .99087 | .028418 | 36.008 | 28789.3 | 32414.3 | 262.716 | 56.26 | 65.27 | 242 |
| 450.000 | .32334 | 3.093 | .99192 | .027726 | 36.901 | 29358.3 | 33069.6 | 264.189 | 56.83 | 65.80 | 245 |
| 460.000 | .31600 | 3.165 | .99288 | .027068 | 37.790 | 29932.7 | 33730.2 | 265.641 | 57.38 | 66.31 | 248 |
| 470.000 | .30900 | 3.236 | .99377 | .026443 | 38.676 | 30512.3 | 34395.8 | 267.072 | 57.91 | 66.81 | 250 |
| 480.000 | .30232 | 3.308 | .99458 | .025847 | 39.560 | 31097.0 | 35066.3 | 268.484 | 58.42 | 67.29 | 253 |
| 490.000 | .29593 | 3.379 | .99532 | .025278 | 40.440 | 31686.4 | 35741.4 | 269.876 | 58.91 | 67.75 | 255 |
| 500.000 | .28981 | 3.451 | .99600 | .024735 | 41.319 | 32280.5 | 36421.1 | 271.249 | 59.38 | 68.19 | 251 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 14 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.613 | 26.322 | .03799 | .09603 | 45.4656 | 837.394 | 12.0 | 65.2 | 92.686 | 49.94 | 73.67 | 1319 |
| 70.000 | 26.138 | .03826 | .09203 | 43.3047 | 792.395 | 259.5 | 313.1 | 96.317 | 48.52 | 72.77 | 1293 |
| 80.000 | 25.536 | .03908 | .08226 | 37.6822 | 675.901 | 977.1 | 1031.8 | 105.904 | 45.29 | 70.97 | 1221 |
| 90.000 | 25.023 | .03996 | .07477 | 32.9561 | 578.839 | 1681.2 | 1737.2 | 114.206 | 43.14 | 70.12 | 1151 |
| 100.000 | 24.447 | .04090 | .06888 | 28.9134 | 496.572 | 2379.3 | 2436.5 | 121.578 | 41.74 | 69.91 | 1082 |
| 110.000 | 23.858 | .04192 | .06416 | 25.4079 | 425.842 | 3077.1 | 3135.8 | 128.249 | 40.85 | 70.14 | 1014 |
| 120.000 | 23.253 | .04301 | .06034 | 22.3346 | 364.277 | 3779.3 | 3839.5 | 134.374 | 40.31 | 70.70 | 948 |
| 130.000 | 22.630 | .04419 | .05723 | 19.6150 | 310.104 | 4489.0 | 4550.9 | 140.065 | 40.04 | 71.54 | 883 |
| 140.000 | 21.987 | .04548 | .05470 | 17.1883 | 261.977 | 5208.7 | 5272.4 | 145.405 | 40.00 | 72.66 | 818 |
| 150.000 | 21.316 | .04691 | .05266 | 15.0059 | 218.863 | 5940.8 | 6006.5 | 150.466 | 40.15 | 74.11 | 754 |
| 160.000 | 20.612 | .04851 | .05106 | 13.0272 | 179.962 | 6688.6 | 6756.5 | 155.306 | 40.48 | 75.99 | 689 |
| 170.000 | 19.864 | .05034 | .04986 | 11.2170 | 144.644 | 7456.9 | 7527.4 | 159.983 | 40.97 | 78.45 | 624 |
| 180.000 | 19.054 | .05248 | .04909 | 9.5419 | 112.396 | 8253.2 | 8326.7 | 164.556 | 41.59 | 81.75 | 557 |
| 190.000 | 18.153 | .05509 | .04882 | 7.9665 | 82.775 | 9088.9 | 9166.0 | 169.093 | 42.25 | 86.46 | 488 |
| 196.639 | 17.478 | .05722 | .04899 | 6.9529 | 64.335 | 9674.6 | 9754.7 | 172.136 | 42.69 | 91.06 | 439 |
| | | | | | | | | | | | |
| 196.639 | 1.10662 | .904 | .77379 | .116620 | 9.142 | 16903.3 | 18168.4 | 214.923 | 38.38 | 62.27 | 144 |
| 200.000 | 1.06650 | .938 | .78940 | .110036 | 9.830 | 17060.4 | 18373.1 | 215.952 | 37.99 | 59.65 | 147 |
| 210.000 | .97063 | 1.030 | .82607 | .096141 | 11.604 | 17504.2 | 18946.5 | 218.751 | 37.90 | 55.66 | 154 |
| 220.000 | .89690 | 1.115 | .85334 | .086578 | 13.141 | 17932.8 | 19493.7 | 221.297 | 38.41 | 54.01 | 161 |
| 230.000 | .83702 | 1.195 | .87464 | .079321 | 14.537 | 18357.4 | 20030.0 | 223.681 | 39.16 | 53.37 | 167 |
| 240.000 | .78673 | 1.271 | .89178 | .073514 | 15.837 | 18783.3 | 20562.8 | 225.948 | 40.02 | 53.26 | 172 |
| 250.000 | .74352 | 1.345 | .90586 | .068705 | 17.066 | 19213.3 | 21096.2 | 228.126 | 40.95 | 53.46 | 177 |
| 260.000 | .70577 | 1.417 | .91761 | .064624 | 18.242 | 19649.0 | 21632.6 | 230.230 | 41.90 | 53.85 | 181 |
| 270.000 | .67236 | 1.487 | .92753 | .061095 | 19.375 | 20091.4 | 22173.7 | 232.272 | 42.87 | 54.37 | 186 |
| 280.000 | .64247 | 1.556 | .93601 | .058002 | 20.474 | 20541.3 | 22720.4 | 234.260 | 43.83 | 54.98 | 190 |
| 290.000 | .61552 | 1.625 | .94330 | .055257 | 21.544 | 20998.9 | 23273.4 | 236.200 | 44.78 | 55.63 | 194 |
| 300.000 | .59104 | 1.692 | .94962 | .052800 | 22.591 | 21464.4 | 23833.1 | 238.098 | 45.72 | 56.32 | 197 |
| 310.000 | .56867 | 1.758 | .95514 | .050582 | 23.618 | 21937.9 | 24399.8 | 239.956 | 46.64 | 57.02 | 201 |
| 320.000 | .54812 | 1.824 | .95999 | .048567 | 24.627 | 22419.4 | 24973.5 | 241.777 | 47.53 | 57.73 | 205 |
| 330.000 | .52916 | 1.890 | .96425 | .046725 | 25.621 | 22908.8 | 25554.5 | 243.565 | 48.41 | 58.45 | 208 |
| 340.000 | .51159 | 1.955 | .96803 | .045034 | 26.602 | 23405.9 | 26142.5 | 245.320 | 49.25 | 59.16 | 212 |
| 350.000 | .49525 | 2.019 | .97140 | .043473 | 27.572 | 23910.7 | 26737.5 | 247.045 | 50.07 | 59.85 | 215 |
| 360.000 | .48001 | 2.083 | .97439 | .042027 | 28.531 | 24422.9 | 27339.5 | 248.741 | 50.87 | 60.54 | 218 |
| 370.000 | .46576 | 2.147 | .97708 | .040682 | 29.481 | 24942.4 | 27948.3 | 250.408 | 51.63 | 61.21 | 221 |
| 380.000 | .45239 | 2.211 | .97949 | .039429 | 30.423 | 25468.9 | 28563.6 | 252.050 | 52.37 | 61.86 | 224 |
| 390.000 | .43981 | 2.274 | .98166 | .038256 | 31.357 | 26002.3 | 29185.4 | 253.664 | 53.09 | 62.50 | 228 |
| 400.000 | .42796 | 2.337 | .98362 | .037157 | 32.285 | 26542.2 | 29813.5 | 255.255 | 53.78 | 63.12 | 231 |
| 410.000 | .41677 | 2.399 | .98539 | .036123 | 33.207 | 27088.6 | 30447.7 | 256.821 | 54.44 | 63.72 | 233 |
| 420.000 | .40619 | 2.462 | .98700 | .035149 | 34.123 | 27641.1 | 31087.8 | 258.363 | 55.08 | 64.30 | 236 |
| 430.000 | .39616 | 2.524 | .98846 | .034230 | 35.034 | 28199.6 | 31733.6 | 259.883 | 55.70 | 64.86 | 239 |
| 440.000 | .38663 | 2.586 | .98978 | .033361 | 35.941 | 28763.9 | 32384.9 | 261.380 | 56.29 | 65.40 | 242 |
| 450.000 | .37758 | 2.648 | .99099 | .032537 | 36.843 | 29333.7 | 33041.6 | 262.856 | 56.86 | 65.93 | 245 |
| 460.000 | .36896 | 2.710 | .99210 | .031755 | 37.742 | 29908.9 | 33703.4 | 264.310 | 57.40 | 66.43 | 248 |
| 470.000 | .36074 | 2.772 | .99311 | .031012 | 38.636 | 30489.3 | 34370.2 | 265.744 | 57.93 | 66.92 | 250 |
| 480.000 | .35290 | 2.834 | .99404 | .030305 | 39.528 | 31074.6 | 35041.8 | 267.158 | 58.44 | 67.39 | 253 |
| 490.000 | .34540 | 2.895 | .99489 | .029631 | 40.416 | 31664.7 | 35718.0 | 268.552 | 58.93 | 67.85 | 256 |
| 500.000 | .33823 | 2.957 | .99567 | .028988 | 41.302 | 32259.5 | 36398.7 | 269.928 | 59.40 | 68.29 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 16 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.650 | 26.323 | .03799 | .10969 | 45.4708 | 838.035 | 13.7 | 74.5 | 92.712 | 49.92 | 73.66 | 1319 |
| 70.000 | 26.140 | .03825 | .10517 | 43.3340 | 793.525 | 258.4 | 319.6 | 96.301 | 48.52 | 72.77 | 1294 |
| 80.000 | 25.589 | .03908 | .09400 | 37.7104 | 676.969 | 975.7 | 1038.3 | 105.887 | 45.29 | 70.96 | 1222 |
| 90.000 | 25.026 | .03996 | .08544 | 32.9836 | 579.862 | 1679.6 | 1743.6 | 114.188 | 43.14 | 70.10 | 1151 |
| 100.000 | 24.451 | .04090 | .07870 | 28.9405 | 497.563 | 2377.3 | 2442.8 | 121.559 | 41.74 | 69.90 | 1083 |
| 110.000 | 23.862 | .04191 | .07331 | 25.4349 | 426.813 | 3074.8 | 3141.9 | 128.228 | 40.85 | 70.13 | 1015 |
| 120.000 | 23.258 | .04300 | .06895 | 22.3618 | 365.237 | 3776.6 | 3845.4 | 134.352 | 40.31 | 70.68 | 949 |
| 130.000 | 22.637 | .04418 | .06539 | 19.6427 | 311.061 | 4485.8 | 4556.5 | 140.040 | 40.04 | 71.51 | 884 |
| 140.000 | 21.994 | .04547 | .06250 | 17.2168 | 262.940 | 5205.0 | 5277.7 | 145.378 | 39.99 | 72.62 | 820 |
| 150.000 | 21.325 | .04689 | .06016 | 15.0356 | 219.841 | 5936.3 | 6011.4 | 150.436 | 40.14 | 74.06 | 755 |
| 160.000 | 20.623 | .04849 | .05832 | 13.0585 | 180.963 | 6683.2 | 6760.8 | 155.272 | 40.47 | 75.92 | 691 |
| 170.000 | 19.878 | .05031 | .05695 | 11.2506 | 145.678 | 7450.3 | 7530.8 | 159.944 | 40.96 | 78.35 | 626 |
| 180.000 | 19.072 | .05243 | .05606 | 9.5790 | 113.480 | 8244.9 | 8328.8 | 164.509 | 41.57 | 81.59 | 560 |
| 190.000 | 18.177 | .05501 | .05572 | 8.0090 | 83.930 | 9078.0 | 9166.0 | 169.035 | 42.23 | 86.18 | 491 |
| 200.000 | 17.137 | .05835 | .05615 | 6.4941 | 56.581 | 9969.0 | 10062.4 | 173.627 | 42.87 | 93.63 | 417 |
| 200.404 | 17.090 | .05851 | .05619 | 6.4331 | 55.516 | 10006.5 | 10100.1 | 173.817 | 42.89 | 94.04 | 414 |
| 200.404 | 1.27808 | .782 | .75131 | .138224 | 8.605 | 16925.6 | 18177.5 | 214.122 | 39.38 | 66.62 | 143 |
| 210.000 | 1.15084 | .869 | .79625 | .117784 | 10.595 | 17385.6 | 18775.8 | 217.037 | 38.57 | 59.33 | 151 |
| 220.000 | 1.05407 | .949 | .82983 | .104367 | 12.311 | 17834.2 | 19352.2 | 219.718 | 38.82 | 56.34 | 158 |
| 230.000 | .97803 | 1.022 | .85547 | .094657 | 13.831 | 18272.2 | 19908.1 | 222.190 | 39.45 | 55.03 | 164 |
| 240.000 | .91551 | 1.092 | .87581 | .087112 | 15.223 | 18707.7 | 20455.4 | 224.519 | 40.24 | 54.52 | 170 |
| 250.000 | .86260 | 1.159 | .89235 | .080989 | 16.527 | 19145.1 | 20999.9 | 226.742 | 41.12 | 54.46 | 175 |
| 260.000 | .81687 | 1.224 | .90606 | .075872 | 17.763 | 19586.7 | 21545.4 | 228.881 | 42.04 | 54.67 | 180 |
| 270.000 | .77673 | 1.287 | .91759 | .071500 | 18.948 | 20034.0 | 22093.9 | 230.952 | 42.99 | 55.06 | 184 |
| 280.000 | .74108 | 1.349 | .92738 | .067702 | 20.090 | 20488.0 | 22647.0 | 232.963 | 43.93 | 55.56 | 189 |
| 290.000 | .70911 | 1.410 | .93578 | .064359 | 21.199 | 20949.1 | 23205.4 | 234.922 | 44.87 | 56.14 | 193 |
| 300.000 | .68019 | 1.470 | .94305 | .061385 | 22.279 | 21417.6 | 23769.9 | 236.836 | 45.80 | 56.76 | 197 |
| 310.000 | .65386 | 1.529 | .94937 | .058714 | 23.336 | 21893.8 | 24340.8 | 238.708 | 46.71 | 57.42 | 201 |
| 320.000 | .62976 | 1.588 | .95491 | .056299 | 24.372 | 22377.7 | 24918.3 | 240.542 | 47.60 | 58.09 | 204 |
| 330.000 | .60757 | 1.646 | .95978 | .054101 | 25.390 | 22869.2 | 25502.6 | 242.339 | 48.46 | 58.77 | 208 |
| 340.000 | .58707 | 1.703 | .96409 | .052088 | 26.393 | 23368.3 | 26093.7 | 244.104 | 49.30 | 59.44 | 211 |
| 350.000 | .56804 | 1.760 | .96791 | .050237 | 27.383 | 23874.8 | 26691.5 | 245.837 | 50.12 | 60.12 | 215 |
| 360.000 | .55032 | 1.817 | .97132 | .048527 | 28.360 | 24388.6 | 27296.0 | 247.539 | 50.91 | 60.78 | 218 |
| 370.000 | .53378 | 1.873 | .97437 | .046941 | 29.327 | 24909.6 | 27907.1 | 249.214 | 51.67 | 61.43 | 221 |
| 380.000 | .51828 | 1.929 | .97710 | .045465 | 30.285 | 25437.4 | 28524.6 | 250.860 | 52.41 | 62.07 | 224 |
| 390.000 | .50372 | 1.985 | .97956 | .044087 | 31.233 | 25972.0 | 29148.4 | 252.481 | 53.12 | 62.69 | 227 |
| 400.000 | .49002 | 2.041 | .98178 | .042798 | 32.175 | 26513.1 | 29778.3 | 254.075 | 53.81 | 63.29 | 230 |
| 410.000 | .47709 | 2.096 | .98378 | .041587 | 33.109 | 27060.6 | 30414.2 | 255.646 | 54.47 | 63.88 | 233 |
| 420.000 | .46487 | 2.151 | .98560 | .040448 | 34.037 | 27614.1 | 31055.9 | 257.192 | 55.11 | 64.45 | 236 |
| 430.000 | .45330 | 2.206 | .98725 | .039375 | 34.959 | 28173.6 | 31703.2 | 258.715 | 55.72 | 65.00 | 239 |
| 440.000 | .44233 | 2.261 | .98874 | .038361 | 35.876 | 28738.8 | 32356.0 | 260.216 | 56.31 | 65.54 | 242 |
| 450.000 | .43190 | 2.315 | .99011 | .037401 | 36.788 | 29309.4 | 33014.0 | 261.694 | 56.88 | 66.06 | 245 |
| 460.000 | .42198 | 2.370 | .99136 | .036491 | 37.695 | 29885.4 | 33677.0 | 263.152 | 57.43 | 66.56 | 248 |
| 470.000 | .41253 | 2.424 | .99250 | .035627 | 38.599 | 30466.5 | 34345.0 | 264.588 | 57.96 | 67.04 | 250 |
| 480.000 | .40351 | 2.478 | .99354 | .034805 | 39.498 | 31052.5 | 35017.7 | 266.004 | 58.46 | 67.50 | 253 |
| 490.000 | .39490 | 2.532 | .99449 | .034022 | 40.394 | 31643.3 | 35695.0 | 267.401 | 58.95 | 67.95 | 256 |
| 500.000 | .38666 | 2.586 | .99537 | .033276 | 41.287 | 32238.7 | 36376.7 | 268.778 | 59.42 | 68.39 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 18 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.687 | 26.323 | .03799 | .12333 | 45.4760 | 838.676 | 15.4 | 83.8 | 92.737 | 49.91 | 73.64 | 1320 |
| 70.000 | 26.143 | .03825 | .11830 | 43.3634 | 794.655 | 257.3 | 326.1 | 96.285 | 48.52 | 72.76 | 1295 |
| 80.000 | 25.592 | .03907 | .10574 | 37.7385 | 678.036 | 974.4 | 1044.7 | 105.870 | 45.29 | 70.95 | 1223 |
| 90.000 | 25.030 | .03995 | .09610 | 33.0110 | 580.884 | 1678.0 | 1749.9 | 114.170 | 43.14 | 70.09 | 1152 |
| 100.000 | 24.455 | .04089 | .08853 | 28.9676 | 498.554 | 2375.4 | 2449.0 | 121.539 | 41.74 | 69.88 | 1084 |
| 110.000 | 23.867 | .04190 | .08246 | 25.4619 | 427.784 | 3072.5 | 3147.9 | 128.207 | 40.84 | 70.11 | 1016 |
| 120.000 | 23.264 | .04299 | .07755 | 22.3890 | 366.197 | 3773.9 | 3851.3 | 134.329 | 40.31 | 70.66 | 950 |
| 130.000 | 22.643 | .04416 | .07355 | 19.6703 | 312.018 | 4482.7 | 4562.2 | 140.016 | 40.04 | 71.48 | 885 |
| 140.000 | 22.002 | .04545 | .07028 | 17.2452 | 263.902 | 5201.2 | 5283.0 | 145.351 | 39.99 | 72.58 | 821 |
| 150.000 | 21.334 | .04687 | .06765 | 15.0651 | 220.816 | 5931.9 | 6016.2 | 150.406 | 40.14 | 74.01 | 757 |
| 160.000 | 20.634 | .04846 | .06557 | 13.0897 | 181.961 | 6677.8 | 6765.1 | 155.238 | 40.47 | 75.85 | 693 |
| 170.000 | 19.892 | .05027 | .06402 | 11.2841 | 146.710 | 7443.7 | 7534.2 | 159.905 | 40.96 | 78.24 | 628 |
| 180.000 | 19.089 | .05238 | .06300 | 9.6159 | 114.559 | 8236.6 | 8330.9 | 164.463 | 41.56 | 81.43 | 562 |
| 190.000 | 18.201 | .05494 | .06260 | 8.0511 | 85.079 | 9067.2 | 9166.1 | 168.978 | 42.21 | 85.90 | 493 |
| 200.000 | 17.172 | .05824 | .06304 | 6.5455 | 57.841 | 9953.7 | 10058.6 | 173.549 | 42.83 | 93.07 | 420 |
| 203.840 | 16.716 | .05982 | .06353 | 5.9679 | 47.861 | 10316.3 | 10424.0 | 175.360 | 43.07 | 97.35 | 390 |
| 203.840 | 1.45653 | .687 | .72917 | .161546 | 8.051 | 16935.9 | 18171.7 | 213.369 | 40.36 | 71.50 | 141 |
| 210.000 | 1.34992 | .741 | .76367 | .143260 | 9.501 | 17253.9 | 18587.3 | 215.375 | 39.41 | 64.31 | 147 |
| 220.000 | 1.22253 | .818 | .80492 | .124332 | 11.437 | 17728.8 | 19201.1 | 218.231 | 39.30 | 59.20 | 155 |
| 230.000 | 1.12659 | .888 | .83550 | .111431 | 13.097 | 18182.7 | 19780.5 | 220.806 | 39.77 | 56.95 | 162 |
| 240.000 | 1.04967 | .953 | .85935 | .101740 | 14.593 | 18629.4 | 20344.2 | 223.206 | 40.48 | 55.93 | 168 |
| 250.000 | .98567 | 1.015 | .87855 | .094051 | 15.976 | 19075.0 | 20901.2 | 225.480 | 41.31 | 55.55 | 173 |
| 260.000 | .93102 | 1.074 | .89434 | .087728 | 17.277 | 19523.2 | 21456.5 | 227.658 | 42.19 | 55.55 | 178 |
| 270.000 | .88351 | 1.132 | .90753 | .082393 | 18.515 | 19975.8 | 22013.1 | 229.758 | 43.11 | 55.79 | 183 |
| 280.000 | .84160 | 1.188 | .91869 | .077803 | 19.703 | 20434.1 | 22572.8 | 231.794 | 44.04 | 56.18 | 188 |
| 290.000 | .80423 | 1.243 | .92824 | .073795 | 20.851 | 20898.9 | 23137.0 | 233.774 | 44.96 | 56.67 | 192 |
| 300.000 | .77059 | 1.298 | .93646 | .070252 | 21.966 | 21370.6 | 23706.5 | 235.704 | 45.88 | 57.23 | 196 |
| 310.000 | .74009 | 1.351 | .94360 | .067089 | 23.053 | 21849.6 | 24281.7 | 237.590 | 46.78 | 57.83 | 200 |
| 320.000 | .71225 | 1.404 | .94985 | .064241 | 24.116 | 22335.9 | 24863.1 | 239.436 | 47.66 | 58.45 | 204 |
| 330.000 | .68670 | 1.456 | .95533 | .061659 | 25.159 | 22829.6 | 25450.9 | 241.245 | 48.52 | 59.09 | 207 |
| 340.000 | .66315 | 1.508 | .96017 | .059304 | 26.185 | 23330.7 | 26045.0 | 243.018 | 49.36 | 59.74 | 211 |
| 350.000 | .64133 | 1.559 | .96446 | .057144 | 27.194 | 23839.0 | 26645.7 | 244.759 | 50.17 | 60.39 | 214 |
| 360.000 | .62106 | 1.610 | .96828 | .055154 | 28.190 | 24354.5 | 27252.7 | 246.469 | 50.95 | 61.03 | 218 |
| 370.000 | .60215 | 1.661 | .97169 | .053312 | 29.174 | 24876.9 | 27866.2 | 248.150 | 51.72 | 61.66 | 221 |
| 380.000 | .58447 | 1.711 | .97475 | .051603 | 30.147 | 25406.1 | 28485.9 | 249.803 | 52.45 | 62.28 | 224 |
| 390.000 | .56788 | 1.761 | .97750 | .050010 | 31.111 | 25942.0 | 29111.7 | 251.428 | 53.16 | 62.88 | 227 |
| 400.000 | .55228 | 1.811 | .97997 | .048521 | 32.065 | 26484.3 | 29743.5 | 253.027 | 53.85 | 63.47 | 230 |
| 410.000 | .53759 | 1.860 | .98221 | .047126 | 33.012 | 27032.8 | 30381.1 | 254.602 | 54.51 | 64.05 | 233 |
| 420.000 | .52371 | 1.909 | .98423 | .045816 | 33.952 | 27587.4 | 31024.4 | 256.152 | 55.14 | 64.61 | 236 |
| 430.000 | .51058 | 1.959 | .98607 | .044582 | 34.885 | 28147.8 | 31673.2 | 257.679 | 55.75 | 65.15 | 239 |
| 440.000 | .49813 | 2.008 | .98774 | .043418 | 35.812 | 28713.8 | 32327.3 | 259.183 | 56.34 | 65.68 | 242 |
| 450.000 | .48631 | 2.056 | .98926 | .042317 | 36.734 | 29285.3 | 32986.7 | 260.664 | 56.91 | 66.18 | 245 |
| 460.000 | .47507 | 2.105 | .99064 | .041275 | 37.650 | 29862.1 | 33651.0 | 262.124 | 57.45 | 66.68 | 248 |
| 470.000 | .46437 | 2.153 | .99191 | .040286 | 38.562 | 30443.9 | 34320.1 | 263.563 | 57.98 | 67.15 | 250 |
| 480.000 | .45417 | 2.202 | .99307 | .039346 | 39.470 | 31030.7 | 34994.0 | 264.982 | 58.48 | 67.61 | 253 |
| 490.000 | .44442 | 2.250 | .99413 | .038452 | 40.374 | 31622.1 | 35672.3 | 266.381 | 58.97 | 68.06 | 256 |
| 500.000 | .43511 | 2.298 | .99510 | .037600 | 41.274 | 32218.1 | 36355.0 | 267.760 | 59.44 | 68.48 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 20 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.725 | 26.324 | .03799 | .13695 | 45.4812 | 839.317 | 17.1 | 93.1 | 92.763 | 49.89 | 73.62 | 1320 |
| 70.000 | 26.146 | .03825 | .13143 | 43.3927 | 795.784 | 256.2 | 332.7 | 96.269 | 48.52 | 72.75 | 1296 |
| 80.000 | 25.595 | .03907 | .11748 | 37.7667 | 679.103 | 973.0 | 1051.2 | 105.853 | 45.29 | 70.94 | 1223 |
| 90.000 | 25.033 | .03995 | .10677 | 33.0384 | 581.907 | 1676.4 | 1756.3 | 114.151 | 43.14 | 70.08 | 1153 |
| 100.000 | 24.459 | .04088 | .09835 | 28.9946 | 499.545 | 2373.5 | 2455.2 | 121.520 | 41.74 | 69.87 | 1085 |
| 110.000 | 23.872 | .04189 | .09160 | 25.4889 | 428.754 | 3070.2 | 3154.0 | 128.186 | 40.84 | 70.09 | 1017 |
| 120.000 | 23.269 | .04297 | .08614 | 22.4161 | 367.155 | 3771.2 | 3857.2 | 134.307 | 40.31 | 70.64 | 951 |
| 130.000 | 22.650 | .04415 | .08169 | 19.6979 | 312.974 | 4479.5 | 4567.8 | 139.991 | 40.04 | 71.45 | 886 |
| 140.000 | 22.009 | .04544 | .07807 | 17.2736 | 264.863 | 5197.4 | 5288.3 | 145.324 | 39.99 | 72.54 | 822 |
| 150.000 | 21.343 | .04685 | .07513 | 15.0946 | 221.791 | 5927.4 | 6021.1 | 150.376 | 40.13 | 73.96 | 758 |
| 160.000 | 20.645 | .04844 | .07282 | 13.1208 | 182.958 | 6672.5 | 6769.3 | 155.204 | 40.46 | 75.78 | 694 |
| 170.000 | 19.905 | .05024 | .07109 | 11.3174 | 147.739 | 7437.2 | 7537.7 | 159.866 | 40.95 | 78.14 | 630 |
| 180.000 | 19.107 | .05234 | .06994 | 9.6525 | 115.634 | 8228.5 | 8333.1 | 164.417 | 41.55 | 81.27 | 564 |
| 190.000 | 18.224 | .05487 | .06947 | 8.0928 | 86.221 | 9056.5 | 9166.2 | 168.921 | 42.18 | 85.64 | 496 |
| 200.000 | 17.206 | .05812 | .06990 | 6.5960 | 59.089 | 9938.7 | 10055.0 | 173.473 | 42.79 | 92.53 | 424 |
| 207.009 | 16.351 | .06116 | .07107 | 5.5456 | 41.143 | 10609.1 | 10731.4 | 176.796 | 43.21 | 101.09 | 368 |
| 207.009 | 1.64313 | .609 | .70719 | .186797 | 7.484 | 16935.3 | 18152.5 | 212.645 | 41.34 | 77.09 | 140 |
| 210.000 | 1.57477 | .635 | .72737 | .174207 | 8.294 | 17104.2 | 18374.2 | 213.706 | 40.56 | 71.55 | 143 |
| 220.000 | 1.40482 | .712 | .77831 | .146993 | 10.511 | 17614.7 | 19038.4 | 216.797 | 39.87 | 62.78 | 152 |
| 230.000 | 1.28388 | .779 | .81460 | .129878 | 12.335 | 18088.3 | 19646.1 | 219.499 | 40.13 | 59.21 | 160 |
| 240.000 | 1.18985 | .840 | .84235 | .117523 | 13.945 | 18547.9 | 20228.8 | 221.979 | 40.74 | 57.53 | 166 |
| 250.000 | 1.11310 | .898 | .86441 | .107963 | 15.414 | 19002.9 | 20799.7 | 224.310 | 41.50 | 56.76 | 172 |
| 260.000 | 1.04847 | .954 | .88240 | .100238 | 16.783 | 19458.2 | 21365.7 | 226.530 | 42.35 | 56.51 | 177 |
| 270.000 | .99283 | 1.007 | .89734 | .093804 | 18.077 | 19916.5 | 21930.9 | 228.663 | 43.24 | 56.57 | 182 |
| 280.000 | .94413 | 1.059 | .90992 | .088325 | 19.312 | 20379.5 | 22497.8 | 230.725 | 44.14 | 56.83 | 187 |
| 290.000 | .90096 | 1.110 | .92064 | .083580 | 20.501 | 20848.2 | 23068.0 | 232.726 | 45.05 | 57.23 | 191 |
| 300.000 | .86230 | 1.160 | .92985 | .079412 | 21.651 | 21323.3 | 23642.7 | 234.674 | 45.96 | 57.71 | 195 |
| 310.000 | .82738 | 1.209 | .93783 | .075712 | 22.769 | 21805.2 | 24222.4 | 236.575 | 46.85 | 58.25 | 199 |
| 320.000 | .79563 | 1.257 | .94479 | .072397 | 23.860 | 22294.1 | 24807.8 | 238.433 | 47.72 | 58.83 | 203 |
| 330.000 | .76656 | 1.305 | .95089 | .069403 | 24.928 | 22790.0 | 25399.1 | 240.253 | 48.58 | 59.43 | 207 |
| 340.000 | .73983 | 1.352 | .95627 | .066682 | 25.976 | 23293.1 | 25996.4 | 242.036 | 49.41 | 60.04 | 210 |
| 350.000 | .71513 | 1.398 | .96103 | .064194 | 27.006 | 23803.3 | 26600.0 | 243.785 | 50.22 | 60.66 | 214 |
| 360.000 | .69222 | 1.445 | .96527 | .061907 | 28.021 | 24320.4 | 27209.6 | 245.503 | 51.00 | 61.28 | 217 |
| 370.000 | .67088 | 1.491 | .96905 | .059797 | 29.022 | 24844.3 | 27825.5 | 247.190 | 51.76 | 61.89 | 221 |
| 380.000 | .65096 | 1.536 | .97243 | .057842 | 30.011 | 25374.9 | 28447.3 | 248.848 | 52.49 | 62.49 | 224 |
| 390.000 | .63229 | 1.582 | .97546 | .056023 | 30.989 | 25912.1 | 29075.2 | 250.479 | 53.20 | 63.08 | 227 |
| 400.000 | .61476 | 1.627 | .97820 | .054327 | 31.957 | 26455.5 | 29708.8 | 252.083 | 53.88 | 63.65 | 230 |
| 410.000 | .59826 | 1.672 | .98067 | .052740 | 32.916 | 27005.2 | 30348.2 | 253.662 | 54.54 | 64.22 | 233 |
| 420.000 | .58269 | 1.716 | .98290 | .051251 | 33.868 | 27560.8 | 30993.1 | 255.216 | 55.17 | 64.76 | 236 |
| 430.000 | .56797 | 1.761 | .98492 | .049851 | 34.812 | 28122.1 | 31643.4 | 256.746 | 55.78 | 65.30 | 239 |
| 440.000 | .55403 | 1.805 | .98676 | .048531 | 35.749 | 28689.1 | 32299.0 | 258.253 | 56.37 | 65.81 | 242 |
| 450.000 | .54080 | 1.849 | .98843 | .047285 | 36.680 | 29261.4 | 32959.7 | 259.738 | 56.93 | 66.31 | 245 |
| 460.000 | .52823 | 1.893 | .98996 | .046106 | 37.606 | 29839.0 | 33625.2 | 261.201 | 57.48 | 66.80 | 248 |
| 470.000 | .51626 | 1.937 | .99135 | .044989 | 38.527 | 30421.6 | 34295.6 | 262.642 | 58.00 | 67.27 | 250 |
| 480.000 | .50486 | 1.981 | .99262 | .043928 | 39.442 | 31009.0 | 34970.5 | 264.063 | 58.51 | 67.72 | 253 |
| 490.000 | .49397 | 2.024 | .99379 | .042919 | 40.354 | 31601.1 | 35649.9 | 265.464 | 58.99 | 68.16 | 256 |
| 500.000 | .48357 | 2.068 | .99486 | .041958 | 41.261 | 32197.7 | 36333.6 | 266.845 | 59.46 | 68.58 | 258 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 22 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.762 | 26.324 | .03799 | .15056 | 45.4864 | 839.958 | 18.8 | 102.4 | 92.788 | 49.87 | 73.60 | 1321 |
| 70.000 | 26.148 | .03824 | .14456 | 43.4220 | 796.914 | 255.1 | 339.2 | 96.253 | 48.52 | 72.75 | 1297 |
| 80.000 | 25.598 | .03907 | .12921 | 37.7948 | 680.170 | 971.7 | 1057.6 | 105.836 | 45.29 | 70.93 | 1224 |
| 90.000 | 25.036 | .03994 | .11743 | 33.0658 | 582.929 | 1674.8 | 1762.6 | 114.133 | 43.14 | 70.07 | 1154 |
| 100.000 | 24.463 | .04088 | .10816 | 29.0216 | 500.535 | 2371.5 | 2461.5 | 121.500 | 41.74 | 69.85 | 1086 |
| 110.000 | 23.876 | .04188 | .10075 | 25.5158 | 429.723 | 3068.0 | 3160.1 | 128.166 | 40.84 | 70.08 | 1019 |
| 120.000 | 23.275 | .04296 | .09474 | 22.4432 | 368.113 | 3768.5 | 3863.1 | 134.284 | 40.30 | 70.62 | 953 |
| 130.000 | 22.656 | .04414 | .08984 | 19.7255 | 313.929 | 4476.3 | 4573.4 | 139.967 | 40.03 | 71.42 | 888 |
| 140.000 | 22.017 | .04542 | .08584 | 17.3019 | 265.823 | 5193.7 | 5293.6 | 145.298 | 39.98 | 72.51 | 823 |
| 150.000 | 21.352 | .04683 | .08261 | 15.1240 | 222.764 | 5923.0 | 6026.0 | 150.346 | 40.13 | 73.91 | 760 |
| 160.000 | 20.656 | .04841 | .08006 | 13.1517 | 183.952 | 6667.2 | 6773.7 | 155.171 | 40.45 | 75.71 | 696 |
| 170.000 | 19.919 | .05020 | .07814 | 11.3506 | 148.765 | 7430.7 | 7541.2 | 159.828 | 40.94 | 78.05 | 632 |
| 180.000 | 19.124 | .05229 | .07687 | 9.6889 | 116.705 | 8220.4 | 8335.4 | 164.372 | 41.53 | 81.12 | 566 |
| 190.000 | 18.247 | .05480 | .07632 | 8.1341 | 87.357 | 9046.0 | 9166.5 | 168.865 | 42.16 | 85.38 | 499 |
| 200.000 | 17.239 | .05801 | .07674 | 6.6457 | 60.325 | 9924.0 | 10051.6 | 173.398 | 42.75 | 92.02 | 427 |
| 209.953 | 15.990 | .06254 | .07882 | 5.1578 | 35.199 | 10887.8 | 11025.4 | 178.147 | 43.34 | 105.40 | 347 |
| | | | | | | | | | | | |
| 209.953 | 1.83926 | .544 | .68521 | .214235 | 6.905 | 16924.0 | 18120.1 | 211.939 | 42.33 | 83.58 | 138 |
| 210.000 | 1.83780 | .544 | .68560 | .213940 | 6.920 | 16927.1 | 18124.2 | 211.955 | 42.31 | 83.43 | 138 |
| 220.000 | 1.60452 | .623 | .74958 | .173099 | 9.524 | 17489.9 | 18861.1 | 215.385 | 40.54 | 67.43 | 149 |
| 230.000 | 1.45143 | .689 | .79262 | .150297 | 11.542 | 17988.2 | 19503.9 | 218.244 | 40.54 | 61.91 | 157 |
| 240.000 | 1.33680 | .748 | .82473 | .134610 | 13.278 | 18463.0 | 20108.7 | 220.818 | 41.02 | 59.35 | 164 |
| 250.000 | 1.24533 | .803 | .84989 | .122809 | 14.839 | 18928.5 | 20695.1 | 223.212 | 41.71 | 58.10 | 170 |
| 260.000 | 1.16945 | .855 | .87022 | .113451 | 16.281 | 19391.7 | 21272.9 | 225.478 | 42.51 | 57.54 | 176 |
| 270.000 | 1.10484 | .905 | .88700 | .105765 | 17.633 | 19856.1 | 21847.4 | 227.646 | 43.37 | 57.40 | 181 |
| 280.000 | 1.04876 | .954 | .90106 | .099289 | 18.918 | 20324.1 | 22421.8 | 229.736 | 44.26 | 57.52 | 186 |
| 290.000 | .99937 | 1.001 | .91299 | .093727 | 20.148 | 20797.0 | 22998.4 | 231.759 | 45.15 | 57.81 | 190 |
| 300.000 | .95536 | 1.047 | .92321 | .088875 | 21.335 | 21275.6 | 23578.4 | 233.725 | 46.04 | 58.21 | 194 |
| 310.000 | .91578 | 1.092 | .93204 | .084592 | 22.485 | 21760.5 | 24162.9 | 235.642 | 46.92 | 58.69 | 199 |
| 320.000 | .87990 | 1.136 | .93973 | .080773 | 23.604 | 22252.0 | 24752.3 | 237.513 | 47.79 | 59.21 | 202 |
| 330.000 | .84717 | 1.180 | .94646 | .077337 | 24.697 | 22750.4 | 25347.2 | 239.344 | 48.64 | 59.77 | 206 |
| 340.000 | .81714 | 1.224 | .95238 | .074225 | 25.767 | 23255.5 | 25947.8 | 241.136 | 49.46 | 60.35 | 210 |
| 350.000 | .78945 | 1.267 | .95762 | .071389 | 26.818 | 23767.5 | 26554.3 | 242.894 | 50.27 | 60.94 | 213 |
| 360.000 | .76381 | 1.309 | .96227 | .068790 | 27.851 | 24286.3 | 27166.6 | 244.619 | 51.05 | 61.53 | 217 |
| 370.000 | .73998 | 1.351 | .96642 | .066396 | 28.870 | 24811.8 | 27784.9 | 246.313 | 51.80 | 62.12 | 220 |
| 380.000 | .71775 | 1.393 | .97013 | .064183 | 29.875 | 25343.8 | 28409.0 | 247.977 | 52.53 | 62.70 | 224 |
| 390.000 | .69696 | 1.435 | .97345 | .062129 | 30.867 | 25882.3 | 29038.8 | 249.613 | 53.23 | 63.27 | 227 |
| 400.000 | .67745 | 1.476 | .97645 | .060215 | 31.849 | 26426.9 | 29674.4 | 251.222 | 53.91 | 63.84 | 230 |
| 410.000 | .65911 | 1.517 | .97914 | .058428 | 32.821 | 26977.7 | 30315.5 | 252.805 | 54.57 | 64.39 | 233 |
| 420.000 | .64181 | 1.558 | .98159 | .056754 | 33.784 | 27534.3 | 30962.1 | 254.363 | 55.20 | 64.92 | 236 |
| 430.000 | .62548 | 1.599 | .98380 | .055182 | 34.739 | 28096.6 | 31613.9 | 255.897 | 55.81 | 65.44 | 239 |
| 440.000 | .61002 | 1.639 | .98580 | .053702 | 35.687 | 28664.5 | 32270.9 | 257.407 | 56.40 | 65.95 | 242 |
| 450.000 | .59536 | 1.680 | .98763 | .052305 | 36.628 | 29237.7 | 32932.9 | 258.895 | 56.96 | 66.44 | 245 |
| 460.000 | .58144 | 1.720 | .98929 | .050986 | 37.563 | 29816.0 | 33599.7 | 260.361 | 57.50 | 66.92 | 248 |
| 470.000 | .56820 | 1.760 | .99081 | .049736 | 38.492 | 30399.3 | 34271.2 | 261.805 | 58.03 | 67.38 | 250 |
| 480.000 | .55558 | 1.800 | .99220 | .048550 | 39.416 | 30987.5 | 34947.3 | 263.228 | 58.53 | 67.83 | 253 |
| 490.000 | .54355 | 1.840 | .99347 | .047424 | 40.335 | 31580.3 | 35627.8 | 264.631 | 59.01 | 68.26 | 256 |
| 500.000 | .53205 | 1.880 | .99463 | .046352 | 41.249 | 32177.5 | 36312.5 | 266.014 | 59.48 | 68.68 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 24 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.800 | 26.324 | .03799 | .16415 | 45.4916 | 840.599 | 20.6 | 111.7 | 92.814 | 49.86 | 73.59 | 1321 |
| 70.000 | 26.151 | .03824 | .15769 | 43.4513 | 798.044 | 254.0 | 345.7 | 96.238 | 48.52 | 72.74 | 1298 |
| 80.000 | 25.601 | .03906 | .14094 | 37.8229 | 681.237 | 970.3 | 1064.1 | 105.819 | 45.29 | 70.92 | 1225 |
| 90.000 | 25.040 | .03994 | .12809 | 33.0932 | 583.950 | 1673.1 | 1769.0 | 114.115 | 43.14 | 70.06 | 1155 |
| 100.000 | 24.467 | .04087 | .11798 | 29.0486 | 501.525 | 2369.6 | 2467.7 | 121.481 | 41.74 | 69.84 | 1087 |
| 110.000 | 23.881 | .04187 | .10988 | 25.5427 | 430.692 | 3065.7 | 3166.2 | 128.145 | 40.84 | 70.06 | 1020 |
| 120.000 | 23.280 | .04295 | .10333 | 22.4703 | 369.071 | 3765.9 | 3868.9 | 134.262 | 40.30 | 70.59 | 954 |
| 130.000 | 22.662 | .04413 | .09798 | 19.7530 | 314.883 | 4473.2 | 4579.1 | 139.942 | 40.03 | 71.40 | 889 |
| 140.000 | 22.024 | .04540 | .09361 | 17.3301 | 266.782 | 5190.0 | 5299.0 | 145.271 | 39.98 | 72.47 | 825 |
| 150.000 | 21.361 | .04681 | .09009 | 15.1533 | 223.735 | 5918.6 | 6030.9 | 150.316 | 40.12 | 73.86 | 761 |
| 160.000 | 20.667 | .04839 | .08729 | 13.1826 | 184.945 | 6661.9 | 6778.0 | 155.137 | 40.45 | 75.65 | 697 |
| 170.000 | 19.932 | .05017 | .08519 | 11.3836 | 149.789 | 7424.3 | 7544.7 | 159.789 | 40.93 | 77.95 | 633 |
| 180.000 | 19.141 | .05224 | .08378 | 9.7250 | 117.772 | 8212.3 | 8337.7 | 164.326 | 41.52 | 80.97 | 568 |
| 190.000 | 18.270 | .05473 | .08315 | 8.1750 | 88.486 | 9035.6 | 9166.9 | 168.809 | 42.14 | 85.13 | 501 |
| 200.000 | 17.272 | .05790 | .08356 | 6.6947 | 61.551 | 9909.6 | 10048.5 | 173.325 | 42.72 | 91.53 | 430 |
| 210.000 | 16.039 | .06235 | .08570 | 5.2167 | 36.486 | 10869.3 | 11019.0 | 178.052 | 43.26 | 104.15 | 351 |
| 212.706 | 15.630 | .06398 | .08683 | 4.7979 | 29.908 | 11155.6 | 11309.1 | 179.429 | 43.47 | 110.48 | 327 |
| 212.706 | 2.04658 | .489 | .66308 | .244173 | 6.316 | 16902.3 | 18075.0 | 211.238 | 43.34 | 91.27 | 136 |
| 220.000 | 1.82699 | .547 | .71815 | .203787 | 8.463 | 17351.0 | 18664.7 | 213.961 | 41.38 | 73.72 | 145 |
| 230.000 | 1.63119 | .613 | .76938 | .173078 | 10.713 | 17881.2 | 19352.5 | 217.020 | 40.99 | 65.16 | 154 |
| 240.000 | 1.49144 | .670 | .80641 | .153178 | 12.591 | 18374.0 | 19983.2 | 219.705 | 41.32 | 61.43 | 162 |
| 250.000 | 1.38283 | .723 | .83496 | .138682 | 14.253 | 18851.6 | 20587.2 | 222.171 | 41.93 | 59.58 | 168 |
| 260.000 | 1.29426 | .773 | .85779 | .127424 | 15.770 | 19323.5 | 21177.8 | 224.487 | 42.69 | 58.67 | 174 |
| 270.000 | 1.21973 | .820 | .87649 | .118311 | 17.184 | 19794.6 | 21762.3 | 226.693 | 43.51 | 58.29 | 180 |
| 280.000 | 1.15561 | .865 | .89209 | .110718 | 18.519 | 20267.9 | 22344.8 | 228.811 | 44.37 | 58.25 | 185 |
| 290.000 | 1.09951 | .909 | .90527 | .104252 | 19.793 | 20745.2 | 22928.0 | 230.858 | 45.25 | 58.42 | 189 |
| 300.000 | 1.04981 | .953 | .91653 | .098651 | 21.016 | 21227.5 | 23513.6 | 232.843 | 46.13 | 58.73 | 194 |
| 310.000 | 1.00530 | .995 | .92623 | .093736 | 22.198 | 21715.6 | 24102.9 | 234.776 | 47.00 | 59.14 | 198 |
| 320.000 | .96510 | 1.036 | .93466 | .089373 | 23.346 | 22209.8 | 24696.6 | 236.661 | 47.86 | 59.61 | 202 |
| 330.000 | .92853 | 1.077 | .94203 | .085465 | 24.465 | 22710.6 | 25295.3 | 238.503 | 48.70 | 60.12 | 206 |
| 340.000 | .89507 | 1.117 | .94850 | .081937 | 25.558 | 23217.9 | 25899.2 | 240.305 | 49.52 | 60.67 | 210 |
| 350.000 | .86429 | 1.157 | .95422 | .078732 | 26.630 | 23731.8 | 26508.6 | 242.072 | 50.32 | 61.22 | 213 |
| 360.000 | .83584 | 1.196 | .95929 | .075802 | 27.682 | 24252.3 | 27123.7 | 243.804 | 51.09 | 61.79 | 217 |
| 370.000 | .80944 | 1.235 | .96381 | .073111 | 28.718 | 24779.4 | 27744.4 | 245.505 | 51.84 | 62.35 | 220 |
| 380.000 | .78485 | 1.274 | .96784 | .070627 | 29.739 | 25312.8 | 28370.7 | 247.175 | 52.57 | 62.92 | 223 |
| 390.000 | .76188 | 1.313 | .97146 | .068326 | 30.746 | 25852.6 | 29002.7 | 248.817 | 53.27 | 63.47 | 227 |
| 400.000 | .74035 | 1.351 | .97471 | .066187 | 31.742 | 26398.4 | 29640.1 | 250.430 | 53.95 | 64.02 | 230 |
| 410.000 | .72013 | 1.389 | .97764 | .064192 | 32.726 | 26950.3 | 30283.0 | 252.018 | 54.60 | 64.56 | 233 |
| 420.000 | .70109 | 1.426 | .98029 | .062326 | 33.701 | 27508.0 | 30931.2 | 253.580 | 55.23 | 65.08 | 236 |
| 430.000 | .68311 | 1.464 | .98269 | .060575 | 34.667 | 28071.2 | 31584.6 | 255.117 | 55.84 | 65.59 | 239 |
| 440.000 | .66611 | 1.501 | .98486 | .058929 | 35.626 | 28640.0 | 32243.0 | 256.631 | 56.42 | 66.09 | 242 |
| 450.000 | .65000 | 1.538 | .98684 | .057378 | 36.576 | 29214.0 | 32906.3 | 258.122 | 56.99 | 66.57 | 245 |
| 460.000 | .63471 | 1.576 | .98864 | .055913 | 37.520 | 29793.2 | 33574.4 | 259.590 | 57.53 | 67.04 | 248 |
| 470.000 | .62018 | 1.612 | .99029 | .054527 | 38.458 | 30377.3 | 34247.1 | 261.037 | 58.05 | 67.50 | 250 |
| 480.000 | .60634 | 1.649 | .99179 | .053213 | 39.390 | 30966.1 | 34924.3 | 262.462 | 58.55 | 67.94 | 253 |
| 490.000 | .59314 | 1.686 | .99316 | .051966 | 40.316 | 31559.6 | 35605.8 | 263.868 | 59.03 | 68.36 | 256 |
| 500.000 | .58054 | 1.723 | .99442 | .050780 | 41.238 | 32157.5 | 36291.5 | 265.253 | 59.50 | 68.77 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 26 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.837 | 26.325 | .03799 | .17773 | 45.4968 | 841.241 | 22.3 | 121.0 | 92.839 | 49.84 | 73.57 | 1322 |
| 70.000 | 26.153 | .03824 | .17081 | 43.4805 | 799.173 | 252.9 | 352.3 | 96.222 | 48.52 | 72.73 | 1298 |
| 80.000 | 25.604 | .03906 | .15267 | 37.8509 | 682.304 | 969.0 | 1070.5 | 105.802 | 45.29 | 70.91 | 1226 |
| 90.000 | 25.043 | .03993 | .13874 | 33.1205 | 584.972 | 1671.5 | 1775.3 | 114.097 | 43.14 | 70.05 | 1156 |
| 100.000 | 24.471 | .04086 | .12779 | 29.0755 | 502.515 | 2367.7 | 2473.9 | 121.462 | 41.73 | 69.83 | 1088 |
| 110.000 | 23.886 | .04187 | .11902 | 25.5695 | 431.661 | 3063.4 | 3172.3 | 128.124 | 40.84 | 70.04 | 1021 |
| 120.000 | 23.286 | .04294 | .11191 | 22.4973 | 370.027 | 3763.2 | 3874.8 | 134.239 | 40.30 | 70.57 | 955 |
| 130.000 | 22.669 | .04411 | .10611 | 19.7804 | 315.836 | 4470.0 | 4584.7 | 139.918 | 40.03 | 71.37 | 890 |
| 140.000 | 22.032 | .04539 | .10138 | 17.3583 | 267.740 | 5186.3 | 5304.3 | 145.244 | 39.98 | 72.43 | 826 |
| 150.000 | 21.370 | .04679 | .09755 | 15.1825 | 224.705 | 5914.2 | 6035.8 | 150.286 | 40.12 | 73.81 | 763 |
| 160.000 | 20.678 | .04836 | .09452 | 13.2133 | 185.935 | 6656.6 | 6782.3 | 155.104 | 40.44 | 75.58 | 699 |
| 170.000 | 19.945 | .05014 | .09222 | 11.4165 | 150.809 | 7417.9 | 7548.2 | 159.751 | 40.92 | 77.85 | 635 |
| 180.000 | 19.158 | .05220 | .09068 | 9.7609 | 118.836 | 8204.4 | 8340.1 | 164.281 | 41.51 | 80.83 | 570 |
| 190.000 | 18.292 | .05467 | .08997 | 8.2155 | 89.610 | 9025.3 | 9167.4 | 168.754 | 42.12 | 84.89 | 504 |
| 200.000 | 17.304 | .05779 | .09036 | 6.7429 | 62.766 | 9895.4 | 10045.6 | 173.252 | 42.68 | 91.06 | 434 |
| 210.000 | 16.093 | .06214 | .09253 | 5.2809 | 37.866 | 10846.9 | 11008.4 | 177.943 | 43.18 | 102.90 | 356 |
| 215.294 | 15.267 | .06550 | .09514 | 4.4608 | 25.179 | 11414.9 | 11585.2 | 180.658 | 43.61 | 116.61 | 307 |
| 215.294 | 2.26711 | .441 | .64067 | .277005 | 5.721 | 16870.1 | 18017.0 | 210.532 | 44.38 | 100.56 | 135 |
| 220.000 | 2.08080 | .481 | .68310 | .240944 | 7.307 | 17192.7 | 18442.2 | 212.483 | 42.47 | 82.84 | 141 |
| 230.000 | 1.82580 | .548 | .74466 | .198738 | 9.847 | 17765.8 | 19189.8 | 215.808 | 41.52 | 69.19 | 152 |
| 240.000 | 1.65490 | .604 | .78733 | .173445 | 11.884 | 18280.5 | 19851.6 | 218.626 | 41.65 | 63.84 | 160 |
| 250.000 | 1.52618 | .655 | .81958 | .155693 | 13.654 | 18771.8 | 20475.4 | 221.173 | 42.17 | 61.23 | 167 |
| 260.000 | 1.42320 | .703 | .84508 | .142217 | 15.253 | 19253.4 | 21080.2 | 223.545 | 42.87 | 59.89 | 173 |
| 270.000 | 1.33768 | .748 | .86581 | .131479 | 16.730 | 19731.8 | 21675.5 | 225.792 | 43.65 | 59.25 | 178 |
| 280.000 | 1.26479 | .791 | .88300 | .122635 | 18.118 | 20210.9 | 22266.5 | 227.941 | 44.49 | 59.02 | 183 |
| 290.000 | 1.20148 | .832 | .89747 | .115171 | 19.435 | 20692.8 | 22856.8 | 230.012 | 45.35 | 59.06 | 188 |
| 300.000 | 1.14570 | .873 | .90980 | .108752 | 20.696 | 21179.0 | 23448.3 | 232.018 | 46.21 | 59.27 | 193 |
| 310.000 | 1.09598 | .912 | .92039 | .103150 | 21.911 | 21670.3 | 24042.6 | 233.966 | 47.07 | 59.61 | 197 |
| 320.000 | 1.05124 | .951 | .92958 | .098203 | 23.088 | 22167.4 | 24640.7 | 235.865 | 47.92 | 60.02 | 201 |
| 330.000 | 1.01068 | .989 | .93759 | .093790 | 24.233 | 22670.6 | 25243.2 | 237.719 | 48.76 | 60.48 | 205 |
| 340.000 | .97365 | 1.027 | .94462 | .089820 | 25.349 | 23180.1 | 25850.5 | 239.532 | 49.57 | 60.99 | 209 |
| 350.000 | .93966 | 1.064 | .95082 | .086224 | 26.442 | 23696.0 | 26463.0 | 241.307 | 50.37 | 61.51 | 213 |
| 360.000 | .90831 | 1.101 | .95632 | .082946 | 27.513 | 24218.3 | 27080.8 | 243.047 | 51.14 | 62.05 | 216 |
| 370.000 | .87927 | 1.137 | .96120 | .079942 | 28.566 | 24746.9 | 27704.0 | 244.755 | 51.88 | 62.59 | 220 |
| 380.000 | .85226 | 1.173 | .96557 | .077175 | 29.603 | 25281.9 | 28332.6 | 246.431 | 52.61 | 63.13 | 223 |
| 390.000 | .82706 | 1.209 | .96948 | .074617 | 30.625 | 25822.9 | 28966.6 | 248.078 | 53.31 | 63.67 | 226 |
| 400.000 | .80347 | 1.245 | .97299 | .072243 | 31.635 | 26370.0 | 29606.0 | 249.697 | 53.98 | 64.20 | 230 |
| 410.000 | .78133 | 1.280 | .97615 | .070032 | 32.632 | 26923.0 | 30250.7 | 251.289 | 54.63 | 64.73 | 233 |
| 420.000 | .76050 | 1.315 | .97901 | .067966 | 33.619 | 27481.7 | 30900.5 | 252.855 | 55.26 | 65.24 | 236 |
| 430.000 | .74086 | 1.350 | .98159 | .066031 | 34.596 | 28046.0 | 31555.4 | 254.396 | 55.87 | 65.74 | 239 |
| 440.000 | .72230 | 1.384 | .98394 | .064213 | 35.564 | 28615.7 | 32215.3 | 255.913 | 56.45 | 66.23 | 242 |
| 450.000 | .70472 | 1.419 | .98607 | .062502 | 36.525 | 29190.5 | 32879.9 | 257.406 | 57.01 | 66.70 | 245 |
| 460.000 | .68805 | 1.453 | .98801 | .060888 | 37.478 | 29770.5 | 33549.3 | 258.877 | 57.55 | 67.16 | 248 |
| 470.000 | .67221 | 1.488 | .98978 | .059362 | 38.424 | 30355.3 | 34223.2 | 260.327 | 58.07 | 67.61 | 251 |
| 480.000 | .65713 | 1.522 | .99139 | .057917 | 39.364 | 30944.9 | 34901.5 | 261.755 | 58.57 | 68.05 | 253 |
| 490.000 | .64276 | 1.556 | .99287 | .056546 | 40.298 | 31539.0 | 35584.0 | 263.162 | 59.05 | 68.47 | 256 |
| 500.000 | .62905 | 1.590 | .99422 | .055243 | 41.227 | 32137.5 | 36270.7 | 264.549 | 59.52 | 68.87 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 28 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.874 | 26.325 | .03799 | .19129 | 45.5020 | 841.882 | 24.0 | 130.3 | 92.865 | 49.82 | 73.55 | 1323 |
| 70.000 | 26.156 | .03823 | .18393 | 43.5098 | 800.303 | 251.8 | 358.8 | 96.206 | 48.52 | 72.72 | 1299 |
| 80.000 | 25.607 | .03905 | .16439 | 37.8790 | 683.371 | 967.7 | 1077.0 | 105.785 | 45.29 | 70.91 | 1227 |
| 90.000 | 25.047 | .03993 | .14939 | 33.1478 | 585.993 | 1669.9 | 1781.7 | 114.079 | 43.14 | 70.04 | 1157 |
| 100.000 | 24.475 | .04086 | .13759 | 29.1024 | 503.504 | 2365.8 | 2480.2 | 121.442 | 41.73 | 69.81 | 1089 |
| 110.000 | 23.890 | .04186 | .12815 | 25.5963 | 432.629 | 3061.2 | 3178.4 | 128.103 | 40.84 | 70.02 | 1022 |
| 120.000 | 23.291 | .04293 | .12049 | 22.5242 | 370.984 | 3760.5 | 3880.7 | 134.217 | 40.30 | 70.55 | 956 |
| 130.000 | 22.675 | .04410 | .11424 | 19.8078 | 316.789 | 4466.9 | 4590.4 | 139.893 | 40.03 | 71.34 | 891 |
| 140.000 | 22.039 | .04537 | .10914 | 17.3864 | 268.696 | 5182.6 | 5309.6 | 145.217 | 39.97 | 72.40 | 827 |
| 150.000 | 21.379 | .04677 | .10501 | 15.2117 | 225.673 | 5909.8 | 6040.8 | 150.257 | 40.11 | 73.76 | 764 |
| 160.000 | 20.689 | .04834 | .10173 | 13.2439 | 186.924 | 6651.4 | 6786.7 | 155.071 | 40.44 | 75.51 | 701 |
| 170.000 | 19.959 | .05010 | .09925 | 11.4491 | 151.827 | 7411.5 | 7551.8 | 159.713 | 40.91 | 77.76 | 637 |
| 180.000 | 19.175 | .05215 | .09757 | 9.7966 | 119.895 | 8196.5 | 8342.5 | 164.237 | 41.49 | 80.68 | 573 |
| 190.000 | 18.315 | .05460 | .09678 | 8.2556 | 90.728 | 9015.1 | 9168.0 | 168.700 | 42.10 | 84.66 | 506 |
| 200.000 | 17.336 | .05768 | .09713 | 6.7904 | 63.971 | 9881.4 | 10042.9 | 173.181 | 42.65 | 90.61 | 437 |
| 210.000 | 16.144 | .06194 | .09933 | 5.3433 | 39.224 | 10825.1 | 10998.6 | 177.837 | 43.11 | 101.76 | 361 |
| 217.737 | 14.897 | .06713 | .10382 | 4.1423 | 20.940 | 11668.0 | 11856.0 | 181.847 | 43.78 | 124.18 | 289 |
| 217.737 | 2.50337 | .399 | .61782 | .313226 | 5.121 | 16826.7 | 17945.2 | 209.814 | 45.48 | 112.04 | 133 |
| 220.000 | 2.38138 | .420 | .64279 | .288160 | 6.015 | 17005.2 | 18180.9 | 210.886 | 44.02 | 97.57 | 137 |
| 230.000 | 2.03884 | .490 | .71814 | .227993 | 8.936 | 17640.2 | 19013.5 | 214.591 | 42.12 | 74.30 | 149 |
| 240.000 | 1.82854 | .547 | .76737 | .195676 | 11.156 | 18181.7 | 19713.0 | 217.569 | 42.02 | 66.65 | 157 |
| 250.000 | 1.67602 | .597 | .80372 | .173968 | 13.044 | 18688.9 | 20359.6 | 220.209 | 42.42 | 63.07 | 165 |
| 260.000 | 1.55663 | .642 | .83208 | .157900 | 14.728 | 19181.3 | 20980.0 | 222.643 | 43.06 | 61.22 | 171 |
| 270.000 | 1.45889 | .685 | .85494 | .145311 | 16.272 | 19667.7 | 21586.9 | 224.933 | 43.80 | 60.27 | 177 |
| 280.000 | 1.37643 | .727 | .87380 | .135067 | 17.713 | 20152.8 | 22187.1 | 227.116 | 44.61 | 59.83 | 182 |
| 290.000 | 1.30535 | .766 | .88960 | .126500 | 19.076 | 20639.7 | 22784.7 | 229.213 | 45.45 | 59.73 | 187 |
| 300.000 | 1.24309 | .804 | .90302 | .119188 | 20.375 | 21129.9 | 23382.4 | 231.239 | 46.30 | 59.84 | 192 |
| 310.000 | 1.18786 | .842 | .91452 | .112844 | 21.624 | 21624.7 | 23981.9 | 233.205 | 47.15 | 60.09 | 197 |
| 320.000 | 1.13835 | .878 | .92447 | .107269 | 22.830 | 22124.8 | 24584.5 | 235.118 | 47.99 | 60.44 | 201 |
| 330.000 | 1.09361 | .914 | .93314 | .102317 | 24.000 | 22630.6 | 25190.9 | 236.984 | 48.82 | 60.85 | 205 |
| 340.000 | 1.05287 | .950 | .94073 | .097877 | 25.140 | 23142.3 | 25801.7 | 238.807 | 49.63 | 61.31 | 209 |
| 350.000 | 1.01557 | .985 | .94742 | .093868 | 26.254 | 23660.2 | 26417.3 | 240.592 | 50.42 | 61.80 | 212 |
| 360.000 | .98123 | 1.019 | .95335 | .090223 | 27.344 | 24184.3 | 27037.9 | 242.340 | 51.18 | 62.31 | 216 |
| 370.000 | .94946 | 1.053 | .95861 | .086890 | 28.415 | 24714.5 | 27663.6 | 244.054 | 51.93 | 62.83 | 220 |
| 380.000 | .91997 | 1.087 | .96330 | .083828 | 29.468 | 25250.9 | 28294.5 | 245.737 | 52.65 | 63.35 | 223 |
| 390.000 | .89249 | 1.120 | .96751 | .081001 | 30.505 | 25793.4 | 28930.6 | 247.389 | 53.34 | 63.87 | 226 |
| 400.000 | .86680 | 1.154 | .97128 | .078382 | 31.528 | 26341.7 | 29572.0 | 249.013 | 54.02 | 64.39 | 230 |
| 410.000 | .84271 | 1.187 | .97467 | .075947 | 32.538 | 26895.8 | 30218.4 | 250.609 | 54.67 | 64.90 | 233 |
| 420.000 | .82007 | 1.219 | .97774 | .073674 | 33.537 | 27455.6 | 30869.9 | 252.179 | 55.29 | 65.40 | 236 |
| 430.000 | .79873 | 1.252 | .98051 | .071548 | 34.525 | 28020.8 | 31526.4 | 253.723 | 55.90 | 65.89 | 239 |
| 440.000 | .77858 | 1.284 | .98303 | .069554 | 35.503 | 28591.4 | 32187.7 | 255.244 | 56.48 | 66.37 | 242 |
| 450.000 | .75952 | 1.317 | .98531 | .067678 | 36.474 | 29167.2 | 32853.7 | 256.740 | 57.04 | 66.83 | 245 |
| 460.000 | .74144 | 1.349 | .98738 | .065910 | 37.436 | 29747.9 | 33524.3 | 258.214 | 57.58 | 67.29 | 248 |
| 470.000 | .72428 | 1.381 | .98928 | .064241 | 38.391 | 30333.5 | 34199.4 | 259.666 | 58.10 | 67.73 | 251 |
| 480.000 | .70795 | 1.413 | .99101 | .062661 | 39.339 | 30923.7 | 34878.8 | 261.097 | 58.60 | 68.15 | 253 |
| 490.000 | .69240 | 1.444 | .99258 | .061163 | 40.281 | 31518.5 | 35562.4 | 262.506 | 59.08 | 68.57 | 256 |
| 500.000 | .67757 | 1.476 | .99403 | .059741 | 41.217 | 32117.7 | 36250.1 | 263.895 | 59.54 | 68.97 | 259 |

Table 15. Continued.

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.911 | 26.325 | .03799 | .20484 | 45.5072 | 842.523 | 25.7 | 139.6 | 92.890 | 49.80 | 73.54 | 1323 |
| 70.000 | 26.158 | .03823 | .19705 | 43.5390 | 801.433 | 250.7 | 365.3 | 96.190 | 48.52 | 72.72 | 1300 |
| 80.000 | 25.610 | .03905 | .17611 | 37.9070 | 684.437 | 966.3 | 1083.5 | 105.768 | 45.29 | 70.90 | 1228 |
| 90.000 | 25.050 | .03992 | .16004 | 33.1751 | 587.014 | 1668.3 | 1788.1 | 114.061 | 43.14 | 70.03 | 1158 |
| 100.000 | 24.479 | .04085 | .14740 | 29.1293 | 504.493 | 2363.9 | 2486.4 | 121.423 | 41.73 | 69.80 | 1090 |
| 110.000 | 23.895 | .04185 | .13727 | 25.6231 | 433.597 | 3058.9 | 3184.5 | 128.083 | 40.84 | 70.01 | 1023 |
| 120.000 | 23.296 | .04293 | .12907 | 22.5512 | 371.939 | 3757.9 | 3886.6 | 134.194 | 40.30 | 70.53 | 957 |
| 130.000 | 22.681 | .04409 | .12237 | 19.8351 | 317.740 | 4463.8 | 4596.1 | 139.869 | 40.02 | 71.31 | 892 |
| 140.000 | 22.047 | .04536 | .11690 | 17.4144 | 269.652 | 5178.9 | 5315.0 | 145.191 | 39.97 | 72.36 | 829 |
| 150.000 | 21.388 | .04675 | .11247 | 15.2407 | 226.640 | 5905.4 | 6045.7 | 150.227 | 40.11 | 73.72 | 765 |
| 160.000 | 20.699 | .04831 | .10895 | 13.2744 | 187.910 | 6646.1 | 6791.1 | 155.038 | 40.43 | 75.45 | 702 |
| 170.000 | 19.972 | .05007 | .10627 | 11.4817 | 152.843 | 7405.2 | 7555.4 | 159.676 | 40.90 | 77.66 | 639 |
| 180.000 | 19.191 | .05211 | .10445 | 9.8320 | 120.951 | 8188.6 | 8344.9 | 164.193 | 41.48 | 80.54 | 575 |
| 190.000 | 18.336 | .05454 | .10357 | 8.2954 | 91.840 | 9005.0 | 9168.6 | 168.646 | 42.09 | 84.43 | 509 |
| 200.000 | 17.367 | .05758 | .10388 | 6.8372 | 65.167 | 9867.7 | 10040.5 | 173.111 | 42.61 | 90.18 | 440 |
| 210.000 | 16.195 | .06175 | .10610 | 5.4040 | 40.562 | 10804.0 | 10989.3 | 177.734 | 43.04 | 100.69 | 365 |
| 220.000 | 14.527 | .06884 | .11289 | 3.8479 | 17.258 | 11910.4 | 12116.9 | 182.981 | 44.00 | 133.43 | 271 |
| 220.052 | 14.516 | .06889 | .11296 | 3.8387 | 17.136 | 11917.4 | 12124.1 | 183.010 | 44.01 | 133.81 | 270 |
| 220.052 | 2.759 | .36249 | .59436 | .3535 | 4.518 | 16771.2 | 17858.7 | 209.071 | 46.65 | 126.62 | 131 |
| 230.000 | 2.275 | .43947 | .68942 | .2619 | 7.976 | 17501.6 | 18820.0 | 213.346 | 42.83 | 81.03 | 145 |
| 240.000 | 2.014 | .49650 | .74644 | .2202 | 10.407 | 18076.8 | 19566.3 | 216.524 | 42.41 | 69.98 | 155 |
| 250.000 | 1.833 | .54552 | .78733 | .1937 | 12.422 | 18602.6 | 20239.1 | 219.271 | 42.69 | 65.15 | 163 |
| 260.000 | 1.695 | .58999 | .81877 | .1745 | 14.197 | 19107.0 | 20877.0 | 221.773 | 43.25 | 62.68 | 170 |
| 270.000 | 1.584 | .63148 | .84389 | .1598 | 15.810 | 19602.0 | 21496.5 | 224.111 | 43.96 | 61.36 | 176 |
| 280.000 | 1.491 | .67085 | .86447 | .1480 | 17.307 | 20093.8 | 22106.4 | 226.329 | 44.74 | 60.70 | 181 |
| 290.000 | 1.411 | .70862 | .88165 | .1383 | 18.715 | 20585.9 | 22711.7 | 228.454 | 45.56 | 60.43 | 186 |
| 300.000 | 1.342 | .74514 | .89619 | .1300 | 20.053 | 21080.4 | 23315.8 | 230.502 | 46.39 | 60.42 | 191 |
| 310.000 | 1.281 | .78066 | .90862 | .1228 | 21.335 | 21578.8 | 23920.8 | 232.485 | 47.23 | 60.59 | 196 |
| 320.000 | 1.226 | .81536 | .91935 | .1166 | 22.571 | 22081.9 | 24528.0 | 234.413 | 48.06 | 60.87 | 200 |
| 330.000 | 1.177 | .84937 | .92868 | .1110 | 23.768 | 22590.3 | 25138.4 | 236.291 | 48.88 | 61.23 | 204 |
| 340.000 | 1.133 | .88280 | .93685 | .1061 | 24.931 | 23104.4 | 25752.8 | 238.125 | 49.68 | 61.65 | 208 |
| 350.000 | 1.092 | .91573 | .94403 | .1017 | 26.066 | 23624.3 | 26371.5 | 239.919 | 50.47 | 62.10 | 212 |
| 360.000 | 1.055 | .94823 | .95038 | .0976 | 27.176 | 24150.2 | 26994.9 | 241.675 | 51.23 | 62.58 | 216 |
| 370.000 | 1.020 | .98036 | .95602 | .0940 | 28.264 | 24682.1 | 27623.2 | 243.396 | 51.97 | 63.08 | 219 |
| 380.000 | .988 | 1.01215 | .96105 | .0906 | 29.333 | 25220.0 | 28256.5 | 245.085 | 52.69 | 63.58 | 223 |
| 390.000 | .958 | 1.04364 | .96554 | .0875 | 30.385 | 25763.8 | 28894.7 | 246.743 | 53.38 | 64.08 | 226 |
| 400.000 | .930 | 1.07487 | .96958 | .0846 | 31.421 | 26313.4 | 29538.0 | 248.372 | 54.05 | 64.58 | 229 |
| 410.000 | .904 | 1.10587 | .97321 | .0819 | 32.444 | 26868.7 | 30186.3 | 249.972 | 54.70 | 65.07 | 233 |
| 420.000 | .880 | 1.13665 | .97648 | .0795 | 33.455 | 27429.5 | 30839.5 | 251.546 | 55.32 | 65.56 | 236 |
| 430.000 | .857 | 1.16724 | .97944 | .0771 | 34.454 | 27995.8 | 31497.5 | 253.095 | 55.92 | 66.04 | 239 |
| 440.000 | .835 | 1.19766 | .98212 | .0750 | 35.443 | 28567.3 | 32160.2 | 254.618 | 56.50 | 66.51 | 242 |
| 450.000 | .814 | 1.22791 | .98456 | .0729 | 36.423 | 29143.9 | 32827.6 | 256.118 | 57.06 | 66.96 | 245 |
| 460.000 | .795 | 1.25802 | .98677 | .0710 | 37.394 | 29725.4 | 33499.5 | 257.595 | 57.60 | 67.41 | 248 |
| 470.000 | .776 | 1.28800 | .98879 | .0692 | 38.357 | 30311.8 | 34175.7 | 259.049 | 58.12 | 67.84 | 251 |
| 480.000 | .759 | 1.31785 | .99063 | .0674 | 39.314 | 30902.7 | 34856.3 | 260.482 | 58.62 | 68.26 | 253 |
| 490.000 | .742 | 1.34759 | .99231 | .0658 | 40.263 | 31498.2 | 35541.0 | 261.893 | 59.10 | 68.67 | 256 |
| 500.000 | .726 | 1.37723 | .99385 | .0643 | 41.207 | 32098.0 | 36229.7 | 263.285 | 59.56 | 69.07 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 32 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66.949 | 26.326 | .03799 | .21837 | 45.5123 | 843.164 | 27.3 | 148.9 | 92.916 | 49.79 | 73.52 | 1324 |
| 70.000 | 26.161 | .03823 | .21017 | 43.5682 | 802.562 | 249.6 | 371.9 | 96.174 | 48.52 | 72.71 | 1301 |
| 80.000 | 25.612 | .03904 | .18783 | 37.9350 | 685.504 | 965.0 | 1089.9 | 105.752 | 45.29 | 70.89 | 1229 |
| 90.000 | 25.054 | .03991 | .17069 | 33.2024 | 588.035 | 1666.7 | 1794.4 | 114.043 | 43.14 | 70.02 | 1159 |
| 100.000 | 24.483 | .04084 | .15720 | 29.1562 | 505.482 | 2362.0 | 2492.7 | 121.404 | 41.73 | 69.79 | 1091 |
| 110.000 | 23.899 | .04184 | .14640 | 25.6498 | 434.564 | 3056.7 | 3190.6 | 128.062 | 40.83 | 69.99 | 1024 |
| 120.000 | 23.302 | .04292 | .13764 | 22.5781 | 372.894 | 3755.2 | 3892.5 | 134.172 | 40.30 | 70.51 | 958 |
| 130.000 | 22.688 | .04408 | .13049 | 19.8624 | 318.691 | 4460.7 | 4601.7 | 139.845 | 40.02 | 71.29 | 894 |
| 140.000 | 22.054 | .04534 | .12465 | 17.4424 | 270.606 | 5175.2 | 5320.3 | 145.164 | 39.97 | 72.33 | 830 |
| 150.000 | 21.397 | .04674 | .11991 | 15.2697 | 227.606 | 5901.1 | 6050.6 | 150.198 | 40.11 | 73.67 | 767 |
| 160.000 | 20.710 | .04829 | .11615 | 13.3048 | 188.895 | 6641.0 | 6795.5 | 155.005 | 40.42 | 75.38 | 704 |
| 170.000 | 19.985 | .05004 | .11328 | 11.5141 | 153.856 | 7398.9 | 7559.0 | 159.638 | 40.90 | 77.57 | 641 |
| 180.000 | 19.208 | .05206 | .11132 | 9.8672 | 122.003 | 8180.8 | 8347.4 | 164.149 | 41.47 | 80.41 | 577 |
| 190.000 | 18.358 | .05447 | .11034 | 8.3348 | 92.947 | 8995.0 | 9169.4 | 168.592 | 42.07 | 84.20 | 511 |
| 200.000 | 17.397 | .05748 | .11061 | 6.8834 | 66.354 | 9854.2 | 10038.1 | 173.042 | 42.58 | 89.77 | 443 |
| 210.000 | 16.243 | .06156 | .11283 | 5.4631 | 41.881 | 10783.6 | 10980.6 | 177.633 | 42.98 | 99.70 | 369 |
| 220.000 | 14.638 | .06831 | .11951 | 3.9468 | 18.902 | 11867.4 | 12086.0 | 182.778 | 43.77 | 128.39 | 279 |
| 222.251 | 14.118 | .07083 | .12266 | 3.5465 | 13.725 | 12165.8 | 12392.5 | 184.161 | 44.35 | 146.53 | 252 |
| 222.251 | 3.038 | .32921 | .57008 | .3987 | 3.913 | 16702.0 | 17755.5 | 208.292 | 47.92 | 145.76 | 129 |
| 230.000 | 2.544 | .39315 | .65787 | .3020 | 6.955 | 17345.7 | 18603.7 | 212.043 | 43.70 | 90.31 | 142 |
| 240.000 | 2.214 | .45173 | .72440 | .2475 | 9.636 | 17964.8 | 19410.3 | 215.478 | 42.85 | 73.98 | 153 |
| 250.000 | 1.998 | .50042 | .77038 | .2149 | 11.790 | 18512.4 | 20113.7 | 218.350 | 42.98 | 67.50 | 161 |
| 260.000 | 1.839 | .54391 | .80513 | .1923 | 13.660 | 19030.4 | 20770.9 | 220.926 | 43.46 | 64.27 | 168 |
| 270.000 | 1.712 | .58412 | .83263 | .1751 | 15.345 | 19534.9 | 21404.0 | 223.318 | 44.12 | 62.54 | 175 |
| 280.000 | 1.608 | .62205 | .85502 | .1616 | 16.898 | 20033.7 | 22024.3 | 225.574 | 44.87 | 61.61 | 180 |
| 290.000 | 1.519 | .65828 | .87362 | .1505 | 18.353 | 20531.3 | 22637.8 | 227.727 | 45.66 | 61.17 | 186 |
| 300.000 | 1.443 | .69320 | .88931 | .1411 | 19.731 | 21030.3 | 23248.6 | 229.798 | 46.48 | 61.03 | 191 |
| 310.000 | 1.375 | .72709 | .90269 | .1331 | 21.047 | 21532.5 | 23859.1 | 231.800 | 47.31 | 61.10 | 195 |
| 320.000 | 1.316 | .76012 | .91421 | .1261 | 22.313 | 22038.7 | 24471.1 | 233.743 | 48.13 | 61.31 | 200 |
| 330.000 | 1.262 | .79245 | .92421 | .1200 | 23.536 | 22549.9 | 25085.7 | 235.634 | 48.94 | 61.62 | 204 |
| 340.000 | 1.213 | .82419 | .93295 | .1145 | 24.722 | 23066.3 | 25703.7 | 237.479 | 49.74 | 61.99 | 208 |
| 350.000 | 1.169 | .85541 | .94063 | .1096 | 25.878 | 23588.4 | 26325.7 | 239.282 | 50.52 | 62.41 | 212 |
| 360.000 | 1.128 | .88620 | .94742 | .1052 | 27.008 | 24116.1 | 26952.0 | 241.046 | 51.27 | 62.86 | 215 |
| 370.000 | 1.091 | .91660 | .95344 | .1011 | 28.113 | 24649.7 | 27582.9 | 242.774 | 52.01 | 63.32 | 219 |
| 380.000 | 1.056 | .94667 | .95880 | .0975 | 29.198 | 25189.1 | 28218.5 | 244.469 | 52.72 | 63.80 | 223 |
| 390.000 | 1.024 | .97643 | .96359 | .0941 | 30.265 | 25734.3 | 28858.9 | 246.133 | 53.42 | 64.28 | 226 |
| 400.000 | .994 | 1.00593 | .96788 | .0909 | 31.315 | 26285.2 | 29504.2 | 247.766 | 54.08 | 64.77 | 229 |
| 410.000 | .966 | 1.03520 | .97175 | .0880 | 32.351 | 26841.6 | 30154.2 | 249.372 | 54.73 | 65.25 | 233 |
| 420.000 | .940 | 1.06425 | .97523 | .0853 | 33.373 | 27403.5 | 30809.1 | 250.950 | 55.35 | 65.72 | 236 |
| 430.000 | .915 | 1.09310 | .97838 | .0828 | 34.383 | 27970.8 | 31468.7 | 252.502 | 55.95 | 66.19 | 239 |
| 440.000 | .891 | 1.12178 | .98123 | .0804 | 35.383 | 28543.2 | 32132.9 | 254.029 | 56.53 | 66.65 | 242 |
| 450.000 | .869 | 1.15030 | .98381 | .0782 | 36.372 | 29120.7 | 32801.6 | 255.531 | 57.09 | 67.10 | 245 |
| 460.000 | .848 | 1.17867 | .98616 | .0761 | 37.352 | 29703.0 | 33474.8 | 257.011 | 57.62 | 67.53 | 248 |
| 470.000 | .829 | 1.20691 | .98831 | .0741 | 38.324 | 30290.1 | 34152.2 | 258.468 | 58.14 | 67.96 | 251 |
| 480.000 | .810 | 1.23503 | .99026 | .0723 | 39.289 | 30881.8 | 34833.9 | 259.903 | 58.64 | 68.37 | 254 |
| 490.000 | .792 | 1.26303 | .99204 | .0705 | 40.246 | 31477.9 | 35519.6 | 261.317 | 59.12 | 68.77 | 256 |
| 500.000 | .775 | 1.29092 | .99368 | .0688 | 41.197 | 32078.4 | 36209.3 | 262.710 | 59.58 | 69.16 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 34 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 66.986 | 26.326 | .03799 | .23189 | 45.5175 | 843.806 | 29.0 | 158.2 | 92.941 | 49.77 | 73.50 | 1324 |
| 70.000 | 26.163 | .03822 | .22328 | 43.5974 | 803.692 | 248.5 | 378.4 | 96.158 | 48.52 | 72.70 | 1302 |
| 80.000 | 25.615 | .03904 | .19955 | 37.9630 | 686.570 | 963.6 | 1096.4 | 105.735 | 45.29 | 70.88 | 1230 |
| 90.000 | 25.057 | .03991 | .18133 | 33.2296 | 589.056 | 1665.1 | 1800.8 | 114.025 | 43.14 | 70.01 | 1160 |
| 100.000 | 24.487 | .04084 | .16700 | 29.1830 | 506.471 | 2360.1 | 2498.9 | 121.384 | 41.73 | 69.77 | 1092 |
| 110.000 | 23.904 | .04183 | .15552 | 25.6765 | 435.531 | 3054.4 | 3196.7 | 128.041 | 40.83 | 69.97 | 1025 |
| 120.000 | 23.307 | .04291 | .14621 | 22.6049 | 373.849 | 3752.6 | 3898.5 | 134.150 | 40.29 | 70.49 | 959 |
| 130.000 | 22.694 | .04406 | .13861 | 19.8896 | 319.641 | 4457.6 | 4607.4 | 139.821 | 40.02 | 71.26 | 895 |
| 140.000 | 22.062 | .04533 | .13240 | 17.4703 | 271.559 | 5171.6 | 5325.7 | 145.138 | 39.96 | 72.29 | 831 |
| 150.000 | 21.406 | .04672 | .12736 | 15.2986 | 228.570 | 5896.8 | 6055.6 | 150.169 | 40.10 | 73.62 | 768 |
| 160.000 | 20.721 | .04826 | .12334 | 13.3351 | 189.878 | 6635.8 | 6799.9 | 154.972 | 40.42 | 75.32 | 705 |
| 170.000 | 19.998 | .05001 | .12029 | 11.5463 | 154.866 | 7392.7 | 7562.7 | 159.601 | 40.89 | 77.48 | 642 |
| 180.000 | 19.224 | .05202 | .11817 | 9.9022 | 123.051 | 8173.1 | 8350.0 | 164.105 | 41.46 | 80.27 | 579 |
| 190.000 | 18.379 | .05441 | .11710 | 8.3739 | 94.048 | 8985.2 | 9170.2 | 168.539 | 42.05 | 83.99 | 514 |
| 200.000 | 17.427 | .05738 | .11732 | 6.9290 | 67.532 | 9840.9 | 10036.0 | 172.974 | 42.55 | 89.37 | 446 |
| 210.000 | 16.290 | .06139 | .11954 | 5.5209 | 43.183 | 10763.7 | 10972.4 | 177.536 | 42.92 | 98.77 | 374 |
| 220.000 | 14.740 | .06784 | .12610 | 4.0390 | 20.484 | 11827.6 | 12058.3 | 182.590 | 43.57 | 124.22 | 286 |
| 224.346 | 13.696 | .07302 | .13309 | 3.2624 | 10.673 | 12416.8 | 12665.1 | 185.317 | 44.84 | 164.11 | 234 |
| 224.346 | 3.346 | .29884 | .54470 | .4500 | 3.307 | 16617.0 | 17633.1 | 207.462 | 49.33 | 172.00 | 127 |
| 230.000 | 2.856 | .35012 | .62249 | .3510 | 5.857 | 17165.7 | 18356.1 | 210.643 | 44.81 | 104.09 | 138 |
| 240.000 | 2.430 | .41147 | .70109 | .2780 | 8.841 | 17844.3 | 19243.3 | 214.423 | 43.35 | 78.86 | 150 |
| 250.000 | 2.173 | .46025 | .75283 | .2380 | 11.148 | 18417.8 | 19982.6 | 217.442 | 43.28 | 70.19 | 159 |
| 260.000 | 1.988 | .50304 | .79117 | .2111 | 13.118 | 18951.1 | 20661.5 | 220.105 | 43.68 | 66.03 | 167 |
| 270.000 | 1.844 | .54220 | .82118 | .1912 | 14.877 | 19466.0 | 21309.5 | 222.551 | 44.29 | 63.80 | 173 |
| 280.000 | 1.727 | .57890 | .84545 | .1757 | 16.488 | 19972.5 | 21940.7 | 224.847 | 45.00 | 62.57 | 179 |
| 290.000 | 1.629 | .61381 | .86552 | .1631 | 17.991 | 20476.0 | 22562.9 | 227.030 | 45.77 | 61.94 | 185 |
| 300.000 | 1.545 | .64734 | .88238 | .1526 | 19.409 | 20979.7 | 23180.7 | 229.125 | 46.58 | 61.66 | 190 |
| 310.000 | 1.471 | .67979 | .89672 | .1437 | 20.759 | 21485.7 | 23797.0 | 231.146 | 47.39 | 61.63 | 195 |
| 320.000 | 1.406 | .71137 | .90905 | .1359 | 22.054 | 21995.3 | 24413.9 | 233.105 | 48.20 | 61.77 | 199 |
| 330.000 | 1.347 | .74222 | .91973 | .1291 | 23.304 | 22509.2 | 25032.8 | 235.009 | 49.00 | 62.01 | 203 |
| 340.000 | 1.295 | .77246 | .92906 | .1231 | 24.514 | 23028.1 | 25654.5 | 236.865 | 49.79 | 62.34 | 207 |
| 350.000 | 1.247 | .80219 | .93724 | .1177 | 25.692 | 23552.3 | 26279.7 | 238.677 | 50.57 | 62.72 | 211 |
| 360.000 | 1.203 | .83146 | .94446 | .1129 | 26.840 | 24082.0 | 26909.0 | 240.449 | 51.32 | 63.13 | 215 |
| 370.000 | 1.162 | .86035 | .95086 | .1085 | 27.963 | 24617.3 | 27542.5 | 242.185 | 52.05 | 63.57 | 219 |
| 380.000 | 1.125 | .88889 | .95655 | .1044 | 29.064 | 25158.3 | 28180.5 | 243.887 | 52.76 | 64.03 | 222 |
| 390.000 | 1.090 | .91714 | .96164 | .1007 | 30.146 | 25704.8 | 28823.1 | 245.556 | 53.45 | 64.49 | 226 |
| 400.000 | 1.058 | .94511 | .96620 | .0973 | 31.210 | 26257.0 | 29470.4 | 247.194 | 54.12 | 64.96 | 229 |
| 410.000 | 1.028 | .97285 | .97029 | .0942 | 32.258 | 26814.6 | 30122.3 | 248.804 | 54.76 | 65.42 | 232 |
| 420.000 | 1.000 | 1.00037 | .97399 | .0912 | 33.292 | 27377.6 | 30778.8 | 250.386 | 55.38 | 65.89 | 236 |
| 430.000 | .973 | 1.02769 | .97732 | .0885 | 34.313 | 27945.8 | 31440.0 | 251.942 | 55.98 | 66.34 | 239 |
| 440.000 | .948 | 1.05484 | .98034 | .0859 | 35.323 | 28519.2 | 32105.6 | 253.472 | 56.56 | 66.79 | 242 |
| 450.000 | .924 | 1.08183 | .98308 | .0835 | 36.322 | 29097.5 | 32775.7 | 254.978 | 57.11 | 67.23 | 245 |
| 460.000 | .902 | 1.10867 | .98557 | .0813 | 37.311 | 29680.7 | 33450.2 | 256.460 | 57.65 | 67.66 | 248 |
| 470.000 | .881 | 1.13537 | .98783 | .0791 | 38.292 | 30268.6 | 34128.8 | 257.920 | 58.16 | 68.07 | 251 |
| 480.000 | .861 | 1.16195 | .98990 | .0771 | 39.264 | 30861.0 | 34811.6 | 259.357 | 58.66 | 68.48 | 254 |
| 490.000 | .841 | 1.18842 | .99178 | .0752 | 40.229 | 31457.8 | 35498.4 | 260.773 | 59.14 | 68.88 | 256 |
| 500.000 | .823 | 1.21478 | .99351 | .0734 | 41.187 | 32058.8 | 36189.1 | 262.169 | 59.60 | 69.26 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 36 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.023 | 26.326 | .03798 | .24539 | 45.5227 | 844.447 | 30.7 | 167.5 | 92.966 | 49.75 | 73.49 | 1325 |
| 70.000 | 26.166 | .03822 | .23640 | 43.6266 | 804.822 | 247.4 | 384.9 | 96.142 | 48.52 | 72.70 | 1303 |
| 80.000 | 25.618 | .03903 | .21126 | 37.9910 | 687.637 | 962.3 | 1102.8 | 105.718 | 45.29 | 70.87 | 1231 |
| 90.000 | 25.060 | .03990 | .19197 | 33.2568 | 590.077 | 1663.5 | 1807.2 | 114.007 | 43.14 | 70.00 | 1161 |
| 100.000 | 24.491 | .04083 | .17679 | 29.2098 | 507.459 | 2358.2 | 2505.2 | 121.365 | 41.73 | 69.76 | 1093 |
| 110.000 | 23.909 | .04183 | .16463 | 25.7032 | 436.498 | 3052.2 | 3202.8 | 128.021 | 40.83 | 69.96 | 1026 |
| 120.000 | 23.313 | .04290 | .15477 | 22.6317 | 374.802 | 3749.9 | 3904.4 | 134.128 | 40.29 | 70.47 | 960 |
| 130.000 | 22.700 | .04405 | .14672 | 19.9168 | 320.591 | 4454.5 | 4613.1 | 139.796 | 40.02 | 71.23 | 896 |
| 140.000 | 22.069 | .04531 | .14014 | 17.4981 | 272.512 | 5167.9 | 5331.1 | 145.111 | 39.96 | 72.26 | 833 |
| 150.000 | 21.414 | .04670 | .13479 | 15.3274 | 229.533 | 5892.5 | 6060.6 | 150.140 | 40.10 | 73.58 | 770 |
| 160.000 | 20.731 | .04824 | .13053 | 13.3653 | 190.859 | 6630.6 | 6804.3 | 154.940 | 40.41 | 75.26 | 707 |
| 170.000 | 20.011 | .04997 | .12728 | 11.5784 | 155.874 | 7386.5 | 7566.4 | 159.563 | 40.88 | 77.39 | 644 |
| 180.000 | 19.240 | .05197 | .12502 | 9.9370 | 124.096 | 8165.5 | 8352.6 | 164.061 | 41.45 | 80.14 | 581 |
| 190.000 | 18.401 | .05435 | .12385 | 8.4126 | 95.144 | 8975.4 | 9171.1 | 168.487 | 42.03 | 83.77 | 516 |
| 200.000 | 17.456 | .05729 | .12402 | 6.9740 | 68.701 | 9827.8 | 10034.1 | 172.907 | 42.52 | 88.99 | 449 |
| 210.000 | 16.336 | .06122 | .12621 | 5.5773 | 44.469 | 10744.3 | 10964.6 | 177.441 | 42.86 | 97.91 | 378 |
| 220.000 | 14.834 | .06741 | .13268 | 4.1256 | 22.016 | 11790.5 | 12033.1 | 182.414 | 43.40 | 120.69 | 293 |
| 226.345 | 13.238 | .07554 | .14451 | 2.9823 | 7.955 | 12675.0 | 12947.0 | 186.503 | 45.57 | 190.00 | 216 |
| 226.345 | 3.694 | .27069 | .51781 | .5093 | 2.702 | 16512.1 | 17486.6 | 206.559 | 50.94 | 210.16 | 125 |
| 230.000 | 3.238 | .30886 | .58144 | .4138 | 4.652 | 16948.7 | 18060.6 | 209.072 | 46.32 | 127.10 | 134 |
| 240.000 | 2.668 | .37486 | .67628 | .3125 | 8.022 | 17713.5 | 19063.0 | 213.344 | 43.90 | 84.96 | 147 |
| 250.000 | 2.358 | .42416 | .73462 | .2631 | 10.497 | 18318.4 | 19845.4 | 216.539 | 43.61 | 73.26 | 157 |
| 260.000 | 2.144 | .46650 | .77686 | .2312 | 12.573 | 18869.1 | 20548.5 | 219.298 | 43.91 | 67.96 | 165 |
| 270.000 | 1.981 | .50481 | .80953 | .2082 | 14.408 | 19395.4 | 21212.7 | 221.805 | 44.46 | 65.16 | 172 |
| 280.000 | 1.850 | .54047 | .83576 | .1905 | 16.078 | 19910.1 | 21855.8 | 224.144 | 45.14 | 63.60 | 178 |
| 290.000 | 1.741 | .57422 | .85733 | .1763 | 17.629 | 20419.8 | 22487.0 | 226.359 | 45.88 | 62.74 | 184 |
| 300.000 | 1.649 | .60654 | .87540 | .1645 | 19.087 | 20928.5 | 23112.1 | 228.478 | 46.67 | 62.32 | 189 |
| 310.000 | 1.568 | .63773 | .89073 | .1546 | 20.472 | 21438.6 | 23734.4 | 230.519 | 47.47 | 62.18 | 194 |
| 320.000 | 1.497 | .66802 | .90387 | .1460 | 21.797 | 21951.5 | 24356.4 | 232.494 | 48.27 | 62.24 | 198 |
| 330.000 | 1.434 | .69757 | .91524 | .1385 | 23.073 | 22468.4 | 24979.6 | 234.412 | 49.07 | 62.42 | 203 |
| 340.000 | 1.376 | .72648 | .92515 | .1319 | 24.307 | 22989.8 | 25605.1 | 236.279 | 49.85 | 62.69 | 207 |
| 350.000 | 1.325 | .75487 | .93384 | .1260 | 25.505 | 23516.2 | 26233.7 | 238.101 | 50.62 | 63.03 | 211 |
| 360.000 | 1.277 | .78281 | .94150 | .1207 | 26.673 | 24047.8 | 26865.9 | 239.882 | 51.37 | 63.42 | 215 |
| 370.000 | 1.234 | .81035 | .94828 | .1159 | 27.814 | 24584.8 | 27502.1 | 241.625 | 52.10 | 63.83 | 219 |
| 380.000 | 1.194 | .83755 | .95431 | .1115 | 28.931 | 25127.4 | 28142.5 | 243.333 | 52.80 | 64.26 | 222 |
| 390.000 | 1.157 | .86443 | .95970 | .1075 | 30.027 | 25675.4 | 28787.3 | 245.007 | 53.49 | 64.70 | 226 |
| 400.000 | 1.122 | .89105 | .96452 | .1038 | 31.105 | 26228.8 | 29436.6 | 246.651 | 54.15 | 65.15 | 229 |
| 410.000 | 1.090 | .91743 | .96885 | .1004 | 32.165 | 26787.6 | 30090.4 | 248.265 | 54.79 | 65.60 | 232 |
| 420.000 | 1.060 | .94359 | .97275 | .0972 | 33.211 | 27351.7 | 30748.6 | 249.852 | 55.41 | 66.05 | 236 |
| 430.000 | 1.031 | .96955 | .97627 | .0942 | 34.243 | 27920.9 | 31411.3 | 251.411 | 56.01 | 66.49 | 239 |
| 440.000 | 1.005 | .99534 | .97946 | .0915 | 35.263 | 28495.2 | 32078.5 | 252.945 | 56.58 | 66.93 | 242 |
| 450.000 | .979 | 1.02097 | .98235 | .0889 | 36.272 | 29074.5 | 32749.9 | 254.454 | 57.14 | 67.36 | 245 |
| 460.000 | .956 | 1.04644 | .98497 | .0865 | 37.270 | 29658.4 | 33425.6 | 255.939 | 57.67 | 67.78 | 248 |
| 470.000 | .933 | 1.07179 | .98736 | .0842 | 38.259 | 30247.1 | 34105.5 | 257.401 | 58.19 | 68.19 | 251 |
| 480.000 | .912 | 1.09700 | .98954 | .0820 | 39.240 | 30840.2 | 34789.4 | 258.841 | 58.68 | 68.59 | 254 |
| 490.000 | .891 | 1.12211 | .99153 | .0800 | 40.212 | 31437.7 | 35477.3 | 260.259 | 59.16 | 68.98 | 256 |
| 500.000 | .872 | 1.14711 | .99335 | .0781 | 41.177 | 32039.4 | 36169.0 | 261.656 | 59.62 | 69.36 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 38 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.061 | 26.327 | .03798 | .25887 | 45.5279 | 845.089 | 32.4 | 176.8 | 92.992 | 49.74 | 73.47 | 1325 |
| 70.000 | 26.168 | .03821 | .24950 | 43.6557 | 805.951 | 246.3 | 391.5 | 96.126 | 48.52 | 72.69 | 1304 |
| 80.000 | 25.621 | .03903 | .22298 | 38.0189 | 688.703 | 961.0 | 1109.3 | 105.701 | 45.29 | 70.86 | 1231 |
| 90.000 | 25.064 | .03990 | .20261 | 33.2840 | 591.097 | 1661.9 | 1813.5 | 113.989 | 43.13 | 69.99 | 1162 |
| 100.000 | 24.495 | .04083 | .18658 | 29.2366 | 508.447 | 2356.3 | 2511.4 | 121.346 | 41.73 | 69.75 | 1094 |
| 110.000 | 23.913 | .04182 | .17375 | 25.7299 | 437.463 | 3049.9 | 3208.9 | 128.000 | 40.83 | 69.94 | 1027 |
| 120.000 | 23.318 | .04289 | .16333 | 22.6585 | 375.755 | 3747.3 | 3910.3 | 134.105 | 40.29 | 70.45 | 961 |
| 130.000 | 22.706 | .04404 | .15483 | 19.9440 | 321.539 | 4451.4 | 4618.7 | 139.772 | 40.02 | 71.21 | 897 |
| 140.000 | 22.076 | .04530 | .14788 | 17.5259 | 273.463 | 5164.3 | 5336.5 | 145.085 | 39.96 | 72.22 | 834 |
| 150.000 | 21.423 | .04668 | .14222 | 15.3561 | 230.494 | 5888.2 | 6065.5 | 150.111 | 40.09 | 73.53 | 771 |
| 160.000 | 20.742 | .04821 | .13772 | 13.3954 | 191.838 | 6625.5 | 6808.7 | 154.907 | 40.41 | 75.19 | 709 |
| 170.000 | 20.023 | .04994 | .13426 | 11.6104 | 156.879 | 7380.3 | 7570.1 | 159.526 | 40.87 | 77.31 | 646 |
| 180.000 | 19.256 | .05193 | .13186 | 9.9716 | 125.138 | 8157.9 | 8355.2 | 164.018 | 41.44 | 80.01 | 583 |
| 190.000 | 18.422 | .05428 | .13058 | 8.4511 | 96.235 | 8965.8 | 9172.1 | 168.435 | 42.01 | 83.57 | 519 |
| 200.000 | 17.485 | .05719 | .13069 | 7.0184 | 69.863 | 9815.0 | 10032.3 | 172.841 | 42.50 | 88.62 | 452 |
| 210.000 | 16.380 | .06105 | .13287 | 5.6325 | 45.740 | 10725.4 | 10957.4 | 177.348 | 42.80 | 97.09 | 382 |
| 220.000 | 14.922 | .06702 | .13922 | 4.2075 | 23.504 | 11755.5 | 12010.2 | 182.249 | 43.25 | 117.67 | 300 |
| 228.255 | 12.726 | .07858 | .15734 | 2.7010 | 5.555 | 12948.6 | 13247.2 | 187.757 | 46.72 | 231.85 | 197 |
| 228.255 | 4.097 | .24410 | .48876 | .5795 | 2.097 | 16381.3 | 17308.9 | 205.551 | 52.88 | 270.67 | 122 |
| 230.000 | 3.745 | .26699 | .53054 | .5027 | 3.267 | 16664.9 | 17679.5 | 207.164 | 48.75 | 175.60 | 128 |
| 240.000 | 2.931 | .34118 | .64971 | .3521 | 7.176 | 17570.1 | 18866.5 | 212.227 | 44.52 | 92.78 | 145 |
| 250.000 | 2.554 | .39149 | .71570 | .2905 | 9.838 | 18213.5 | 19701.2 | 215.636 | 43.96 | 76.82 | 155 |
| 260.000 | 2.306 | .43360 | .76219 | .2527 | 12.025 | 18784.1 | 20431.8 | 218.503 | 44.14 | 70.10 | 163 |
| 270.000 | 2.122 | .47124 | .79767 | .2261 | 13.938 | 19323.0 | 21113.7 | 221.077 | 44.63 | 66.62 | 171 |
| 280.000 | 1.976 | .50601 | .82594 | .2060 | 15.669 | 19846.4 | 21769.3 | 223.461 | 45.28 | 64.68 | 177 |
| 290.000 | 1.856 | .53876 | .84907 | .1900 | 17.268 | 20362.8 | 22410.1 | 225.710 | 46.00 | 63.59 | 183 |
| 300.000 | 1.754 | .57001 | .86837 | .1768 | 18.766 | 20876.7 | 23042.7 | 227.855 | 46.76 | 63.01 | 188 |
| 310.000 | 1.666 | .60008 | .88470 | .1658 | 20.186 | 21391.0 | 23671.3 | 229.916 | 47.55 | 62.75 | 193 |
| 320.000 | 1.589 | .62923 | .89868 | .1563 | 21.541 | 21907.5 | 24298.5 | 231.908 | 48.34 | 62.72 | 198 |
| 330.000 | 1.521 | .65760 | .91075 | .1481 | 22.843 | 22427.3 | 24926.2 | 233.839 | 49.13 | 62.83 | 202 |
| 340.000 | 1.459 | .68534 | .92125 | .1409 | 24.101 | 22951.3 | 25555.6 | 235.718 | 49.91 | 63.06 | 207 |
| 350.000 | 1.403 | .71254 | .93044 | .1344 | 25.320 | 23479.9 | 26187.6 | 237.550 | 50.67 | 63.35 | 211 |
| 360.000 | 1.353 | .73928 | .93854 | .1287 | 26.507 | 24013.5 | 26822.8 | 239.339 | 51.41 | 63.70 | 215 |
| 370.000 | 1.306 | .76562 | .94571 | .1234 | 27.665 | 24552.3 | 27461.7 | 241.090 | 52.14 | 64.08 | 218 |
| 380.000 | 1.263 | .79161 | .95208 | .1187 | 28.798 | 25096.5 | 28104.6 | 242.804 | 52.84 | 64.49 | 222 |
| 390.000 | 1.224 | .81729 | .95776 | .1143 | 29.909 | 25645.9 | 28751.6 | 244.484 | 53.53 | 64.91 | 226 |
| 400.000 | 1.187 | .84269 | .96284 | .1104 | 31.000 | 26200.6 | 29402.9 | 246.133 | 54.19 | 65.35 | 229 |
| 410.000 | 1.152 | .86785 | .96741 | .1067 | 32.074 | 26760.7 | 30058.5 | 247.752 | 54.82 | 65.78 | 232 |
| 420.000 | 1.120 | .89280 | .97152 | .1033 | 33.131 | 27325.8 | 30718.5 | 249.343 | 55.44 | 66.21 | 236 |
| 430.000 | 1.090 | .91754 | .97523 | .1001 | 34.174 | 27896.1 | 31382.8 | 250.906 | 56.04 | 66.65 | 239 |
| 440.000 | 1.061 | .94211 | .97858 | .0971 | 35.204 | 28471.4 | 32051.4 | 252.443 | 56.61 | 67.07 | 242 |
| 450.000 | 1.035 | .96652 | .98162 | .0943 | 36.223 | 29051.5 | 32724.2 | 253.955 | 57.16 | 67.49 | 245 |
| 460.000 | 1.009 | .99078 | .98439 | .0917 | 37.230 | 29636.3 | 33401.2 | 255.443 | 57.70 | 67.90 | 248 |
| 470.000 | .985 | 1.01490 | .98690 | .0893 | 38.227 | 30225.7 | 34082.3 | 256.908 | 58.21 | 68.31 | 251 |
| 480.000 | .963 | 1.03890 | .98919 | .0870 | 39.216 | 30819.5 | 34767.3 | 258.350 | 58.70 | 68.70 | 254 |
| 490.000 | .941 | 1.06278 | .99128 | .0848 | 40.196 | 31417.7 | 35456.2 | 259.770 | 59.18 | 69.08 | 257 |
| 500.000 | .920 | 1.08656 | .99319 | .0827 | 41.168 | 32020.0 | 36148.9 | 261.170 | 59.64 | 69.45 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 40 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.098 | 26.327 | .03798 | .27234 | 45.5331 | 845.730 | 34.1 | 186.1 | 93.017 | 49.72 | 73.45 | 1326 |
| 70.000 | 26.170 | .03821 | .26261 | 43.6848 | 807.081 | 245.2 | 398.0 | 96.111 | 48.52 | 72.68 | 1304 |
| 80.000 | 25.624 | .03903 | .23469 | 38.0468 | 689.769 | 959.7 | 1115.8 | 105.684 | 45.29 | 70.86 | 1232 |
| 90.000 | 25.067 | .03989 | .21324 | 33.3111 | 592.117 | 1660.3 | 1819.9 | 113.971 | 43.13 | 69.98 | 1163 |
| 100.000 | 24.499 | .04082 | .19637 | 29.2633 | 509.434 | 2354.4 | 2517.7 | 121.327 | 41.73 | 69.73 | 1095 |
| 110.000 | 23.918 | .04181 | .18286 | 25.7565 | 438.429 | 3047.7 | 3215.0 | 127.979 | 40.83 | 69.92 | 1028 |
| 120.000 | 23.323 | .04288 | .17189 | 22.6852 | 376.708 | 3744.7 | 3916.2 | 134.083 | 40.29 | 70.42 | 963 |
| 130.000 | 22.713 | .04403 | .16293 | 19.9711 | 322.487 | 4448.3 | 4624.4 | 139.748 | 40.01 | 71.18 | 898 |
| 140.000 | 22.083 | .04528 | .15561 | 17.5536 | 274.413 | 5160.7 | 5341.8 | 145.059 | 39.95 | 72.19 | 835 |
| 150.000 | 21.432 | .04666 | .14965 | 15.3848 | 231.454 | 5883.9 | 6070.5 | 150.082 | 40.09 | 73.48 | 773 |
| 160.000 | 20.752 | .04819 | .14489 | 13.4254 | 192.815 | 6620.4 | 6813.2 | 154.875 | 40.40 | 75.13 | 710 |
| 170.000 | 20.036 | .04991 | .14124 | 11.6422 | 157.882 | 7374.1 | 7573.8 | 159.490 | 40.86 | 77.22 | 648 |
| 180.000 | 19.272 | .05189 | .13868 | 10.0060 | 126.176 | 8150.3 | 8357.9 | 163.975 | 41.42 | 79.88 | 585 |
| 190.000 | 18.442 | .05422 | .13730 | 8.4892 | 97.322 | 8956.2 | 9173.1 | 168.383 | 42.00 | 83.36 | 521 |
| 200.000 | 17.514 | .05710 | .13735 | 7.0623 | 71.016 | 9802.3 | 10030.7 | 172.775 | 42.47 | 88.26 | 455 |
| 210.000 | 16.423 | .06089 | .13949 | 5.6865 | 46.996 | 10707.0 | 10950.5 | 177.257 | 42.75 | 96.32 | 386 |
| 220.000 | 15.004 | .06665 | .14574 | 4.2855 | 24.955 | 11722.5 | 11989.1 | 182.092 | 43.11 | 115.03 | 306 |
| 230.000 | 12.181 | .08210 | .17172 | 2.4378 | 3.672 | 13227.8 | 13556.2 | 189.030 | 48.35 | 299.24 | 178 |
| 230.084 | 12.124 | .08248 | .17246 | 2.4098 | 3.466 | 13252.5 | 13582.5 | 189.150 | 48.59 | 310.83 | 176 |
| 230.084 | 4.582 | .21825 | .45635 | .6659 | 1.490 | 16213.1 | 17086.1 | 204.378 | 55.38 | 381.44 | 120 |
| 240.000 | 3.228 | .30978 | .62097 | .3981 | 6.303 | 17410.5 | 18649.6 | 211.053 | 45.24 | 103.17 | 142 |
| 250.000 | 2.765 | .36169 | .69601 | .3206 | 9.172 | 18102.4 | 19549.1 | 214.728 | 44.34 | 80.98 | 153 |
| 260.000 | 2.477 | .40379 | .74715 | .2757 | 11.475 | 18695.8 | 20311.0 | 217.717 | 44.39 | 72.47 | 162 |
| 270.000 | 2.268 | .44091 | .78562 | .2450 | 13.469 | 19248.5 | 21012.2 | 220.364 | 44.82 | 68.20 | 169 |
| 280.000 | 2.106 | .47493 | .81601 | .2221 | 15.260 | 19781.5 | 21681.2 | 222.798 | 45.42 | 65.83 | 176 |
| 290.000 | 1.973 | .50680 | .84074 | .2041 | 16.908 | 20304.9 | 22332.1 | 225.082 | 46.11 | 64.47 | 182 |
| 300.000 | 1.862 | .53710 | .86130 | .1895 | 18.447 | 20824.3 | 22972.7 | 227.253 | 46.86 | 63.72 | 187 |
| 310.000 | 1.766 | .56618 | .87865 | .1773 | 19.901 | 21343.0 | 23607.7 | 229.336 | 47.63 | 63.34 | 193 |
| 320.000 | 1.683 | .59430 | .89347 | .1669 | 21.286 | 21863.1 | 24240.3 | 231.344 | 48.41 | 63.21 | 197 |
| 330.000 | 1.609 | .62163 | .90624 | .1579 | 22.615 | 22386.0 | 24872.5 | 233.289 | 49.19 | 63.26 | 202 |
| 340.000 | 1.542 | .64831 | .91734 | .1500 | 23.896 | 22912.6 | 25505.8 | 235.180 | 49.96 | 63.43 | 206 |
| 350.000 | 1.483 | .67445 | .92705 | .1430 | 25.136 | 23443.5 | 26141.3 | 237.022 | 50.72 | 63.68 | 210 |
| 360.000 | 1.428 | .70011 | .93559 | .1368 | 26.342 | 23979.2 | 26779.6 | 238.820 | 51.46 | 63.99 | 214 |
| 370.000 | 1.379 | .72536 | .94314 | .1311 | 27.518 | 24519.8 | 27421.3 | 240.578 | 52.18 | 64.34 | 218 |
| 380.000 | 1.333 | .75026 | .94985 | .1260 | 28.667 | 25065.5 | 28066.6 | 242.299 | 52.88 | 64.73 | 222 |
| 390.000 | 1.291 | .77485 | .95583 | .1213 | 29.792 | 25616.4 | 28715.9 | 243.985 | 53.56 | 65.13 | 225 |
| 400.000 | 1.251 | .79917 | .96118 | .1170 | 30.897 | 26172.5 | 29369.2 | 245.640 | 54.22 | 65.54 | 229 |
| 410.000 | 1.215 | .82324 | .96598 | .1130 | 31.982 | 26733.7 | 30026.7 | 247.263 | 54.86 | 65.96 | 232 |
| 420.000 | 1.181 | .84709 | .97029 | .1094 | 33.052 | 27300.0 | 30688.4 | 248.858 | 55.47 | 66.38 | 236 |
| 430.000 | 1.148 | .87074 | .97419 | .1060 | 34.106 | 27871.3 | 31354.3 | 250.425 | 56.06 | 66.80 | 239 |
| 440.000 | 1.118 | .89421 | .97771 | .1028 | 35.146 | 28447.5 | 32024.4 | 251.965 | 56.64 | 67.22 | 242 |
| 450.000 | 1.090 | .91752 | .98091 | .0998 | 36.174 | 29028.5 | 32698.6 | 253.480 | 57.19 | 67.63 | 245 |
| 460.000 | 1.063 | .94068 | .98380 | .0970 | 37.190 | 29614.1 | 33376.9 | 254.971 | 57.72 | 68.03 | 248 |
| 470.000 | 1.038 | .96371 | .98644 | .0944 | 38.196 | 30204.3 | 34059.1 | 256.438 | 58.23 | 68.42 | 251 |
| 480.000 | 1.014 | .98661 | .98884 | .0920 | 39.192 | 30798.9 | 34745.3 | 257.883 | 58.73 | 68.81 | 254 |
| 490.000 | .991 | 1.00940 | .99104 | .0896 | 40.180 | 31397.7 | 35435.3 | 259.305 | 59.20 | 69.19 | 257 |
| 500.000 | .969 | 1.03208 | .99304 | .0874 | 41.159 | 32000.7 | 36129.0 | 260.707 | 59.66 | 69.55 | 259 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 42 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.135 | 26.327 | .03798 | .28580 | 45.5383 | 846.372 | 35.8 | 195.3 | 93.042 | 49.70 | 73.43 | 1327 |
| 70.000 | 26.173 | .03821 | .27572 | 43.7139 | 808.211 | 244.1 | 404.6 | 96.095 | 48.52 | 72.68 | 1305 |
| 80.000 | 25.627 | .03902 | .24639 | 38.0747 | 690.835 | 958.3 | 1122.2 | 105.667 | 45.29 | 70.85 | 1233 |
| 90.000 | 25.070 | .03989 | .22388 | 33.3383 | 593.137 | 1658.7 | 1826.3 | 113.953 | 43.13 | 69.96 | 1164 |
| 100.000 | 24.503 | .04081 | .20616 | 29.2900 | 510.421 | 2352.5 | 2523.9 | 121.308 | 41.73 | 69.72 | 1095 |
| 110.000 | 23.922 | .04180 | .19196 | 25.7830 | 439.394 | 3045.5 | 3221.1 | 127.959 | 40.83 | 69.91 | 1029 |
| 120.000 | 23.328 | .04287 | .18045 | 22.7119 | 377.660 | 3742.1 | 3922.1 | 134.061 | 40.29 | 70.40 | 964 |
| 130.000 | 22.719 | .04402 | .17103 | 19.9981 | 323.434 | 4445.2 | 4630.1 | 139.724 | 40.01 | 71.15 | 900 |
| 140.000 | 22.091 | .04527 | .16333 | 17.5813 | 275.363 | 5157.1 | 5347.2 | 145.032 | 39.95 | 72.15 | 836 |
| 150.000 | 21.440 | .04664 | .15707 | 15.4134 | 232.413 | 5879.6 | 6075.5 | 150.053 | 40.09 | 73.44 | 774 |
| 160.000 | 20.762 | .04816 | .15206 | 13.4553 | 193.791 | 6615.4 | 6817.7 | 154.842 | 40.40 | 75.07 | 712 |
| 170.000 | 20.049 | .04988 | .14821 | 11.6739 | 158.882 | 7368.0 | 7577.5 | 159.453 | 40.86 | 77.13 | 649 |
| 180.000 | 19.288 | .05185 | .14550 | 10.0402 | 127.211 | 8142.8 | 8360.6 | 163.933 | 41.41 | 79.75 | 587 |
| 190.000 | 18.463 | .05416 | .14400 | 8.5270 | 98.403 | 8946.8 | 9174.3 | 168.332 | 41.98 | 83.17 | 523 |
| 200.000 | 17.542 | .05701 | .14398 | 7.1057 | 72.163 | 9789.8 | 10029.2 | 172.711 | 42.44 | 87.92 | 458 |
| 210.000 | 16.465 | .06073 | .14609 | 5.7395 | 48.240 | 10689.0 | 10944.0 | 177.168 | 42.70 | 95.60 | 389 |
| 220.000 | 15.082 | .06630 | .15224 | 4.3600 | 26.374 | 11691.2 | 11969.7 | 181.943 | 42.99 | 112.70 | 312 |
| 230.000 | 12.605 | .07933 | .17424 | 2.6723 | 5.858 | 13077.0 | 13410.2 | 188.325 | 46.74 | 223.20 | 198 |
| 231.834 | 11.348 | .08813 | .19202 | 2.0897 | 1.699 | 13623.8 | 13993.9 | 190.858 | 51.84 | 514.63 | 154 |
| 231.834 | 5.216 | .19170 | .41770 | .7808 | .875 | 15979.8 | 16784.9 | 202.896 | 59.11 | 652.83 | 116 |
| 240.000 | 3.570 | .28007 | .58949 | .4529 | 5.397 | 17229.6 | 18405.9 | 209.792 | 46.09 | 117.63 | 139 |
| 250.000 | 2.991 | .33430 | .67549 | .3538 | 8.500 | 17984.2 | 19388.2 | 213.806 | 44.74 | 85.88 | 151 |
| 260.000 | 2.655 | .37663 | .73173 | .3003 | 10.925 | 18604.0 | 20185.8 | 216.936 | 44.65 | 75.10 | 160 |
| 270.000 | 2.419 | .41337 | .77336 | .2649 | 13.001 | 19172.0 | 20908.1 | 219.662 | 45.00 | 69.91 | 168 |
| 280.000 | 2.238 | .44674 | .80596 | .2390 | 14.854 | 19715.2 | 21591.6 | 222.148 | 45.56 | 67.05 | 175 |
| 290.000 | 2.093 | .47785 | .83235 | .2189 | 16.551 | 20246.1 | 22253.1 | 224.470 | 46.23 | 65.40 | 181 |
| 300.000 | 1.971 | .50730 | .85420 | .2027 | 18.131 | 20771.2 | 22901.9 | 226.669 | 46.96 | 64.45 | 187 |
| 310.000 | 1.867 | .53549 | .87258 | .1892 | 19.619 | 21294.5 | 23543.6 | 228.773 | 47.72 | 63.94 | 192 |
| 320.000 | 1.777 | .56269 | .88825 | .1778 | 21.034 | 21818.4 | 24181.7 | 230.799 | 48.49 | 63.72 | 197 |
| 330.000 | 1.698 | .58908 | .90173 | .1680 | 22.388 | 22344.4 | 24818.6 | 232.759 | 49.26 | 63.69 | 201 |
| 340.000 | 1.627 | .61481 | .91343 | .1594 | 23.693 | 22873.8 | 25456.0 | 234.662 | 50.02 | 63.80 | 206 |
| 350.000 | 1.563 | .63998 | .92365 | .1518 | 24.954 | 23407.1 | 26095.0 | 236.514 | 50.77 | 64.01 | 210 |
| 360.000 | 1.505 | .66467 | .93264 | .1450 | 26.179 | 23944.8 | 26736.4 | 238.321 | 51.51 | 64.28 | 214 |
| 370.000 | 1.451 | .68894 | .94058 | .1389 | 27.371 | 24487.2 | 27380.8 | 240.087 | 52.22 | 64.61 | 218 |
| 380.000 | 1.403 | .71286 | .94763 | .1334 | 28.536 | 25034.6 | 28028.6 | 241.814 | 52.92 | 64.96 | 222 |
| 390.000 | 1.358 | .73647 | .95390 | .1284 | 29.676 | 25587.0 | 28680.1 | 243.506 | 53.60 | 65.34 | 225 |
| 400.000 | 1.316 | .75980 | .95951 | .1238 | 30.794 | 26144.4 | 29335.5 | 245.166 | 54.25 | 65.74 | 229 |
| 410.000 | 1.277 | .78288 | .96455 | .1195 | 31.892 | 26706.8 | 29994.9 | 246.794 | 54.89 | 66.14 | 232 |
| 420.000 | 1.241 | .80574 | .96908 | .1156 | 32.973 | 27274.3 | 30658.4 | 248.393 | 55.50 | 66.55 | 235 |
| 430.000 | 1.207 | .82840 | .97316 | .1119 | 34.038 | 27846.6 | 31325.9 | 249.963 | 56.09 | 66.95 | 239 |
| 440.000 | 1.175 | .85088 | .97685 | .1085 | 35.088 | 28423.8 | 31997.4 | 251.507 | 56.66 | 67.36 | 242 |
| 450.000 | 1.145 | .87320 | .98019 | .1054 | 36.125 | 29005.6 | 32673.0 | 253.025 | 57.21 | 67.76 | 245 |
| 460.000 | 1.117 | .89536 | .98323 | .1024 | 37.150 | 29592.1 | 33352.6 | 254.519 | 57.74 | 68.15 | 248 |
| 470.000 | 1.090 | .91740 | .98599 | .0996 | 38.165 | 30183.0 | 34036.1 | 255.989 | 58.25 | 68.54 | 251 |
| 480.000 | 1.065 | .93930 | .98850 | .0970 | 39.169 | 30778.3 | 34723.4 | 257.436 | 58.75 | 68.92 | 254 |
| 490.000 | 1.040 | .96110 | .99080 | .0945 | 40.164 | 31377.8 | 35414.4 | 258.861 | 59.22 | 69.29 | 257 |
| 500.000 | 1.018 | .98278 | .99289 | .0922 | 41.150 | 31981.4 | 36109.1 | 260.264 | 59.68 | 69.65 | 260 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 43 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.154 | 26.328 | .03798 | .29252 | 45.5409 | 846.693 | 36.7 | 200.0 | 93.055 | 49.70 | 73.43 | 1327 |
| 70.000 | 26.174 | .03821 | .28227 | 43.7285 | 808.775 | 243.5 | 407.8 | 96.087 | 48.52 | 72.67 | 1306 |
| 80.000 | 25.628 | .03902 | .25224 | 38.0887 | 691.368 | 957.7 | 1125.5 | 105.659 | 45.28 | 70.84 | 1234 |
| 90.000 | 25.072 | .03988 | .22919 | 33.3518 | 593.647 | 1657.9 | 1829.5 | 113.944 | 43.13 | 69.96 | 1164 |
| 100.000 | 24.505 | .04081 | .21105 | 29.3034 | 510.915 | 2351.5 | 2527.0 | 121.298 | 41.73 | 69.71 | 1096 |
| 110.000 | 23.925 | .04180 | .19651 | 25.7963 | 439.876 | 3044.4 | 3224.1 | 127.949 | 40.83 | 69.90 | 1029 |
| 120.000 | 23.331 | .04286 | .18472 | 22.7252 | 378.136 | 3740.8 | 3925.1 | 134.050 | 40.29 | 70.39 | 964 |
| 130.000 | 22.722 | .04401 | .17508 | 20.0116 | 323.907 | 4443.7 | 4633.0 | 139.712 | 40.01 | 71.14 | 900 |
| 140.000 | 22.094 | .04526 | .16719 | 17.5951 | 275.837 | 5155.3 | 5349.9 | 145.019 | 39.95 | 72.14 | 837 |
| 150.000 | 21.445 | .04663 | .16078 | 15.4276 | 232.892 | 5877.5 | 6078.0 | 150.038 | 40.08 | 73.42 | 775 |
| 160.000 | 20.767 | .04815 | .15564 | 13.4702 | 194.278 | 6612.9 | 6819.9 | 154.826 | 40.39 | 75.04 | 712 |
| 170.000 | 20.055 | .04986 | .15169 | 11.6897 | 159.382 | 7365.0 | 7579.4 | 159.435 | 40.85 | 77.09 | 650 |
| 180.000 | 19.296 | .05182 | .14890 | 10.0572 | 127.727 | 8139.1 | 8362.0 | 163.912 | 41.41 | 79.69 | 588 |
| 190.000 | 18.473 | .05413 | .14735 | 8.5458 | 98.942 | 8942.1 | 9174.9 | 168.307 | 41.97 | 83.07 | 525 |
| 200.000 | 17.555 | .05696 | .14730 | 7.1272 | 72.733 | 9783.6 | 10028.5 | 172.679 | 42.43 | 87.75 | 460 |
| 210.000 | 16.486 | .06066 | .14938 | 5.7656 | 48.857 | 10680.1 | 10940.9 | 177.125 | 42.68 | 95.25 | 391 |
| 220.000 | 15.120 | .06614 | .15548 | 4.3962 | 27.072 | 11676.1 | 11960.5 | 181.872 | 42.93 | 111.63 | 314 |
| 230.000 | 12.763 | .07835 | .17618 | 2.7635 | 6.830 | 13019.8 | 13356.7 | 188.058 | 46.27 | 204.15 | 206 |
| 232.680 | 10.814 | .09247 | .20554 | 1.9021 | .948 | 13868.3 | 14265.9 | 191.990 | 54.28 | 813.56 | 141 |
| 232.680 | 5.649 | .17701 | .39343 | .8598 | .557 | 15813.8 | 16575.0 | 201.913 | 62.19 | 1029.32 | 113 |
| 240.000 | 3.764 | .26566 | .57246 | .4846 | 4.932 | 17128.8 | 18271.2 | 209.116 | 46.57 | 127.23 | 137 |
| 250.000 | 3.111 | .32141 | .66489 | .3717 | 8.163 | 17922.1 | 19304.1 | 213.338 | 44.95 | 88.66 | 150 |
| 260.000 | 2.748 | .36392 | .72388 | .3134 | 10.651 | 18556.6 | 20121.5 | 216.546 | 44.79 | 76.53 | 160 |
| 270.000 | 2.497 | .40052 | .76716 | .2753 | 12.768 | 19132.9 | 20855.1 | 219.315 | 45.10 | 70.81 | 168 |
| 280.000 | 2.306 | .43361 | .80090 | .2477 | 14.652 | 19681.6 | 21546.1 | 221.829 | 45.64 | 67.69 | 174 |
| 290.000 | 2.153 | .46437 | .82813 | .2265 | 16.373 | 20216.4 | 22213.2 | 224.170 | 46.29 | 65.88 | 181 |
| 300.000 | 2.027 | .49343 | .85063 | .2094 | 17.973 | 20744.5 | 22866.2 | 226.384 | 47.01 | 64.83 | 186 |
| 310.000 | 1.919 | .52122 | .86954 | .1953 | 19.479 | 21270.1 | 23511.3 | 228.499 | 47.76 | 64.25 | 192 |
| 320.000 | 1.825 | .54799 | .88563 | .1834 | 20.908 | 21795.9 | 24152.2 | 230.534 | 48.52 | 63.98 | 197 |
| 330.000 | 1.742 | .57394 | .89947 | .1731 | 22.276 | 22323.6 | 24791.5 | 232.501 | 49.29 | 63.91 | 201 |
| 340.000 | 1.669 | .59923 | .91148 | .1642 | 23.592 | 22854.3 | 25431.0 | 234.410 | 50.05 | 63.99 | 206 |
| 350.000 | 1.603 | .62395 | .92196 | .1563 | 24.864 | 23388.8 | 26071.7 | 236.267 | 50.80 | 64.18 | 210 |
| 360.000 | 1.543 | .64818 | .93117 | .1492 | 26.098 | 23927.5 | 26714.7 | 238.079 | 51.53 | 64.43 | 214 |
| 370.000 | 1.488 | .67201 | .93930 | .1429 | 27.299 | 24470.9 | 27360.5 | 239.848 | 52.24 | 64.74 | 218 |
| 380.000 | 1.438 | .69547 | .94652 | .1371 | 28.471 | 25019.1 | 28009.6 | 241.579 | 52.94 | 65.08 | 222 |
| 390.000 | 1.392 | .71862 | .95294 | .1319 | 29.618 | 25572.2 | 28662.3 | 243.274 | 53.62 | 65.45 | 225 |
| 400.000 | 1.349 | .74149 | .95869 | .1272 | 30.743 | 26130.3 | 29318.7 | 244.936 | 54.27 | 65.84 | 229 |
| 410.000 | 1.309 | .76411 | .96384 | .1228 | 31.847 | 26693.4 | 29979.1 | 246.567 | 54.90 | 66.23 | 232 |
| 420.000 | 1.271 | .78651 | .96847 | .1187 | 32.934 | 27261.4 | 30643.4 | 248.167 | 55.52 | 66.63 | 235 |
| 430.000 | 1.237 | .80871 | .97265 | .1149 | 34.004 | 27834.2 | 31311.7 | 249.740 | 56.11 | 67.03 | 239 |
| 440.000 | 1.204 | .83073 | .97642 | .1114 | 35.059 | 28411.9 | 31984.0 | 251.286 | 56.68 | 67.43 | 242 |
| 450.000 | 1.173 | .85258 | .97984 | .1082 | 36.101 | 28994.2 | 32660.3 | 252.805 | 57.23 | 67.83 | 245 |
| 460.000 | 1.144 | .87429 | .98294 | .1051 | 37.131 | 29581.1 | 33340.5 | 254.300 | 57.76 | 68.22 | 248 |
| 470.000 | 1.116 | .89586 | .98576 | .1022 | 38.149 | 30172.4 | 34024.6 | 255.771 | 58.27 | 68.60 | 251 |
| 480.000 | 1.090 | .91730 | .98833 | .0995 | 39.157 | 30768.1 | 34712.5 | 257.220 | 58.76 | 68.97 | 254 |
| 490.000 | 1.065 | .93863 | .99068 | .0970 | 40.156 | 31367.9 | 35404.0 | 258.646 | 59.23 | 69.34 | 257 |
| 500.000 | 1.042 | .95986 | .99282 | .0946 | 41.146 | 31971.8 | 36099.2 | 260.050 | 59.69 | 69.70 | 260 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 44.60714 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.183 | 26.328 | .03798 | .30331 | 45.5450 | 847.209 | 38.0 | 207.4 | 93.075 | 49.68 | 73.41 | 1327 |
| 70.000 | 26.176 | .03820 | .29280 | 43.7519 | 809.683 | 242.7 | 413.1 | 96.074 | 48.52 | 72.67 | 1306 |
| 80.000 | 25.631 | .03902 | .26165 | 38.1111 | 692.224 | 956.6 | 1130.6 | 105.646 | 45.28 | 70.84 | 1234 |
| 90.000 | 25.075 | .03988 | .23773 | 33.3736 | 594.466 | 1656.7 | 1834.6 | 113.930 | 43.13 | 69.95 | 1165 |
| 100.000 | 24.508 | .04080 | .21891 | 29.3248 | 511.708 | 2350.0 | 2532.1 | 121.283 | 41.72 | 69.70 | 1097 |
| 110.000 | 23.928 | .04179 | .20383 | 25.8176 | 440.651 | 3042.6 | 3229.0 | 127.932 | 40.83 | 69.89 | 1030 |
| 120.000 | 23.335 | .04285 | .19159 | 22.7466 | 378.900 | 3738.7 | 3929.8 | 134.032 | 40.28 | 70.38 | 965 |
| 130.000 | 22.727 | .04400 | .18159 | 20.0333 | 324.667 | 4441.3 | 4637.5 | 139.693 | 40.01 | 71.12 | 901 |
| 140.000 | 22.100 | .04525 | .17340 | 17.6172 | 276.598 | 5152.4 | 5354.3 | 144.998 | 39.95 | 72.11 | 838 |
| 150.000 | 21.452 | .04662 | .16673 | 15.4505 | 233.661 | 5874.1 | 6082.0 | 150.015 | 40.08 | 73.38 | 776 |
| 160.000 | 20.776 | .04813 | .16140 | 13.4941 | 195.060 | 6608.8 | 6823.5 | 154.800 | 40.39 | 74.99 | 714 |
| 170.000 | 20.065 | .04984 | .15728 | 11.7150 | 160.183 | 7360.1 | 7582.5 | 159.405 | 40.85 | 77.02 | 652 |
| 180.000 | 19.308 | .05179 | .15436 | 10.0845 | 128.555 | 8133.2 | 8364.2 | 163.878 | 41.40 | 79.59 | 589 |
| 190.000 | 18.489 | .05409 | .15272 | 8.5758 | 99.806 | 8934.6 | 9175.9 | 168.256 | 41.96 | 82.92 | 527 |
| 200.000 | 17.577 | .05689 | .15261 | 7.1614 | 73.646 | 9773.7 | 10027.5 | 172.628 | 42.41 | 87.49 | 462 |
| 210.000 | 16.518 | .06054 | .15466 | 5.8070 | 49.842 | 10666.1 | 10936.2 | 177.055 | 42.64 | 94.71 | 394 |
| 220.000 | 15.178 | .06589 | .16067 | 4.4528 | 28.179 | 11652.5 | 11946.4 | 181.759 | 42.84 | 110.04 | 319 |
| 230.000 | 12.976 | .07707 | .17977 | 2.8907 | 8.295 | 12941.9 | 13285.6 | 187.695 | 45.72 | 183.33 | 216 |
| 240.000 | 4.118 | .24282 | .54280 | .5437 | 4.163 | 16947.6 | 18030.7 | 207.944 | 47.46 | 147.94 | 135 |
| 250.000 | 3.315 | .30165 | .64735 | .4026 | 7.620 | 17817.6 | 19163.2 | 212.574 | 45.31 | 93.70 | 148 |
| 260.000 | 2.902 | .34460 | .71106 | .3353 | 10.211 | 18478.4 | 20015.6 | 215.920 | 45.01 | 79.00 | 158 |
| 270.000 | 2.625 | .38102 | .75710 | .2926 | 12.396 | 19068.9 | 20768.5 | 218.762 | 45.26 | 72.33 | 167 |
| 280.000 | 2.417 | .41372 | .79271 | .2622 | 14.330 | 19626.8 | 21472.2 | 221.322 | 45.76 | 68.75 | 174 |
| 290.000 | 2.252 | .44396 | .82132 | .2390 | 16.090 | 20168.1 | 22148.4 | 223.695 | 46.39 | 66.67 | 180 |
| 300.000 | 2.117 | .47244 | .84488 | .2205 | 17.722 | 20701.1 | 22808.5 | 225.933 | 47.09 | 65.45 | 186 |
| 310.000 | 2.002 | .49961 | .86464 | .2053 | 19.255 | 21230.6 | 23459.2 | 228.066 | 47.82 | 64.76 | 191 |
| 320.000 | 1.902 | .52574 | .88143 | .1924 | 20.708 | 21759.6 | 24104.7 | 230.116 | 48.58 | 64.40 | 196 |
| 330.000 | 1.815 | .55103 | .89584 | .1815 | 22.097 | 22289.9 | 24747.9 | 232.095 | 49.34 | 64.27 | 201 |
| 340.000 | 1.737 | .57565 | .90834 | .1719 | 23.431 | 22822.9 | 25390.7 | 234.014 | 50.09 | 64.30 | 205 |
| 350.000 | 1.668 | .59969 | .91923 | .1635 | 24.719 | 23359.3 | 26034.4 | 235.880 | 50.84 | 64.45 | 210 |
| 360.000 | 1.605 | .62324 | .92880 | .1560 | 25.968 | 23899.8 | 26679.9 | 237.698 | 51.57 | 64.67 | 214 |
| 370.000 | 1.547 | .64638 | .93725 | .1493 | 27.183 | 24444.7 | 27328.0 | 239.474 | 52.28 | 64.95 | 218 |
| 380.000 | 1.494 | .66915 | .94474 | .1432 | 28.368 | 24994.2 | 27979.1 | 241.210 | 52.97 | 65.28 | 221 |
| 390.000 | 1.446 | .69161 | .95140 | .1377 | 29.526 | 25548.5 | 28633.6 | 242.910 | 53.65 | 65.63 | 225 |
| 400.000 | 1.401 | .71378 | .95736 | .1327 | 30.662 | 26107.7 | 29291.7 | 244.576 | 54.30 | 66.00 | 229 |
| 410.000 | 1.359 | .73571 | .96270 | .1280 | 31.776 | 26671.8 | 29953.6 | 246.211 | 54.93 | 66.38 | 232 |
| 420.000 | 1.320 | .75741 | .96750 | .1238 | 32.872 | 27240.7 | 30619.3 | 247.815 | 55.54 | 66.77 | 235 |
| 430.000 | 1.284 | .77891 | .97182 | .1198 | 33.950 | 27814.4 | 31288.9 | 249.390 | 56.13 | 67.16 | 239 |
| 440.000 | 1.250 | .80023 | .97573 | .1161 | 35.014 | 28392.8 | 31962.4 | 250.939 | 56.70 | 67.55 | 242 |
| 450.000 | 1.217 | .82139 | .97927 | .1127 | 36.063 | 28975.8 | 32639.8 | 252.461 | 57.25 | 67.93 | 245 |
| 460.000 | 1.187 | .84240 | .98249 | .1095 | 37.100 | 29563.4 | 33321.1 | 253.958 | 57.77 | 68.32 | 248 |
| 470.000 | 1.158 | .86327 | .98541 | .1064 | 38.125 | 30155.4 | 34006.1 | 255.431 | 58.28 | 68.69 | 251 |
| 480.000 | 1.131 | .88401 | .98807 | .1036 | 39.139 | 30751.6 | 34694.9 | 256.882 | 58.77 | 69.06 | 254 |
| 490.000 | 1.105 | .90464 | .99049 | .1009 | 40.144 | 31352.0 | 35387.4 | 258.309 | 59.25 | 69.42 | 257 |
| 500.000 | 1.081 | .92517 | .99270 | .0984 | 41.139 | 31956.5 | 36083.4 | 259.715 | 59.70 | 69.78 | 260 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 46 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.209 | 26.328 | .03798 | .31266 | 45.5486 | 847.656 | 39.2 | 213.9 | 93.092 | 49.67 | 73.40 | 1328 |
| 70.000 | 26.178 | .03820 | .30192 | 43.7721 | 810.470 | 241.9 | 417.6 | 96.063 | 48.52 | 72.66 | 1307 |
| 80.000 | 25.633 | .03901 | .26980 | 38.1304 | 692.967 | 955.7 | 1135.1 | 105.634 | 45.28 | 70.83 | 1235 |
| 90.000 | 25.077 | .03988 | .24513 | 33.3925 | 595.176 | 1655.6 | 1839.0 | 113.918 | 43.13 | 69.94 | 1165 |
| 100.000 | 24.510 | .04080 | .22572 | 29.3434 | 512.395 | 2348.7 | 2536.4 | 121.270 | 41.72 | 69.70 | 1097 |
| 110.000 | 23.931 | .04179 | .21016 | 25.8361 | 441.323 | 3041.1 | 3233.3 | 127.918 | 40.83 | 69.88 | 1031 |
| 120.000 | 23.339 | .04285 | .19754 | 22.7651 | 379.562 | 3736.9 | 3934.0 | 134.017 | 40.28 | 70.36 | 966 |
| 130.000 | 22.731 | .04399 | .18722 | 20.0520 | 325.325 | 4439.1 | 4641.5 | 139.677 | 40.01 | 71.10 | 902 |
| 140.000 | 22.105 | .04524 | .17877 | 17.6364 | 277.258 | 5149.9 | 5358.0 | 144.980 | 39.95 | 72.09 | 839 |
| 150.000 | 21.458 | .04660 | .17189 | 15.4703 | 234.327 | 5871.2 | 6085.5 | 149.995 | 40.08 | 73.35 | 777 |
| 160.000 | 20.783 | .04812 | .16638 | 13.5147 | 195.737 | 6605.3 | 6826.7 | 154.778 | 40.39 | 74.95 | 715 |
| 170.000 | 20.074 | .04982 | .16212 | 11.7368 | 160.876 | 7355.9 | 7585.1 | 159.380 | 40.84 | 76.97 | 653 |
| 180.000 | 19.319 | .05176 | .15910 | 10.1080 | 129.271 | 8128.0 | 8366.1 | 163.849 | 41.39 | 79.51 | 591 |
| 190.000 | 18.503 | .05405 | .15737 | 8.6017 | 100.552 | 8928.2 | 9176.8 | 168.231 | 41.95 | 82.79 | 528 |
| 200.000 | 17.596 | .05683 | .15721 | 7.1909 | 74.434 | 9765.3 | 10026.7 | 172.585 | 42.39 | 87.26 | 464 |
| 210.000 | 16.546 | .06044 | .15922 | 5.8425 | 50.689 | 10654.2 | 10932.2 | 176.996 | 42.61 | 94.26 | 397 |
| 220.000 | 15.226 | .06568 | .16516 | 4.5005 | 29.126 | 11632.7 | 11934.9 | 181.665 | 42.78 | 108.77 | 322 |
| 230.000 | 13.133 | .07615 | .18317 | 2.9877 | 9.494 | 12883.8 | 13234.1 | 187.424 | 45.35 | 170.74 | 224 |
| 240.000 | 4.484 | .22302 | .51412 | .6060 | 3.475 | 16764.6 | 17790.5 | 206.808 | 48.37 | 174.53 | 132 |
| 250.000 | 3.504 | .28541 | .63161 | .4318 | 7.149 | 17721.9 | 19034.7 | 211.897 | 45.64 | 98.74 | 147 |
| 260.000 | 3.041 | .32885 | .69975 | .3554 | 9.833 | 18408.4 | 19921.1 | 215.376 | 45.20 | 81.32 | 157 |
| 270.000 | 2.738 | .36518 | .74828 | .3083 | 12.075 | 19012.2 | 20692.0 | 218.286 | 45.39 | 73.73 | 166 |
| 280.000 | 2.515 | .39757 | .78556 | .2752 | 14.052 | 19578.5 | 21407.3 | 220.888 | 45.86 | 69.71 | 173 |
| 290.000 | 2.340 | .42740 | .81538 | .2501 | 15.846 | 20125.7 | 22091.7 | 223.290 | 46.47 | 67.38 | 179 |
| 300.000 | 2.196 | .45543 | .83988 | .2303 | 17.506 | 20663.1 | 22758.1 | 225.549 | 47.16 | 66.01 | 185 |
| 310.000 | 2.074 | .48209 | .86038 | .2141 | 19.062 | 21196.1 | 23413.8 | 227.699 | 47.88 | 65.20 | 191 |
| 320.000 | 1.970 | .50771 | .87778 | .2005 | 20.536 | 21727.9 | 24063.4 | 229.762 | 48.63 | 64.77 | 196 |
| 330.000 | 1.878 | .53247 | .89270 | .1888 | 21.942 | 22260.6 | 24710.0 | 231.752 | 49.38 | 64.59 | 201 |
| 340.000 | 1.797 | .55655 | .90562 | .1787 | 23.292 | 22795.6 | 25355.7 | 233.679 | 50.13 | 64.57 | 205 |
| 350.000 | 1.724 | .58004 | .91688 | .1698 | 24.595 | 23333.7 | 26001.9 | 235.552 | 50.87 | 64.68 | 209 |
| 360.000 | 1.658 | .60304 | .92676 | .1620 | 25.857 | 23875.7 | 26649.7 | 237.377 | 51.60 | 64.88 | 213 |
| 370.000 | 1.598 | .62562 | .93547 | .1549 | 27.083 | 24421.9 | 27299.8 | 239.158 | 52.31 | 65.14 | 217 |
| 380.000 | 1.544 | .64784 | .94320 | .1486 | 28.279 | 24972.6 | 27952.7 | 240.899 | 53.00 | 65.44 | 221 |
| 390.000 | 1.493 | .66973 | .95007 | .1428 | 29.448 | 25528.0 | 28608.8 | 242.603 | 53.67 | 65.78 | 225 |
| 400.000 | 1.446 | .69134 | .95621 | .1375 | 30.592 | 26088.2 | 29268.3 | 244.273 | 54.32 | 66.14 | 229 |
| 410.000 | 1.403 | .71270 | .96171 | .1326 | 31.715 | 26653.1 | 29931.5 | 245.911 | 54.95 | 66.51 | 232 |
| 420.000 | 1.363 | .73384 | .96666 | .1282 | 32.818 | 27222.8 | 30598.5 | 247.518 | 55.56 | 66.88 | 235 |
| 430.000 | 1.325 | .75478 | .97112 | .1240 | 33.904 | 27797.2 | 31269.2 | 249.096 | 56.15 | 67.26 | 239 |
| 440.000 | 1.289 | .77553 | .97514 | .1202 | 34.975 | 28376.3 | 31943.7 | 250.647 | 56.72 | 67.65 | 242 |
| 450.000 | 1.256 | .79612 | .97879 | .1166 | 36.031 | 28960.0 | 32622.1 | 252.171 | 57.26 | 68.03 | 245 |
| 460.000 | 1.225 | .81656 | .98209 | .1133 | 37.073 | 29548.1 | 33304.3 | 253.671 | 57.79 | 68.40 | 248 |
| 470.000 | 1.195 | .83687 | .98510 | .1101 | 38.104 | 30140.6 | 33990.2 | 255.146 | 58.30 | 68.77 | 251 |
| 480.000 | 1.167 | .85705 | .98783 | .1072 | 39.124 | 30737.4 | 34679.8 | 256.597 | 58.79 | 69.14 | 254 |
| 490.000 | 1.140 | .87711 | .99033 | .1044 | 40.134 | 31338.2 | 35372.9 | 258.027 | 59.26 | 69.50 | 257 |
| 500.000 | 1.115 | .89707 | .99261 | .1018 | 41.134 | 31943.1 | 36069.7 | 259.434 | 59.71 | 69.84 | 260 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 48 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 67.246 | 26.329 | .03798 | .32607 | 45.5538 | 848.297 | 40.9 | 223.2 | 93.117 | 49.65 | 73.38 | 1328 |
| 70.000 | 26.180 | .03820 | .31502 | 43.8012 | 811.599 | 240.8 | 424.2 | 96.047 | 48.52 | 72.66 | 1308 |
| 80.000 | 25.636 | .03901 | .28150 | 38.1583 | 694.032 | 954.4 | 1141.6 | 105.617 | 45.28 | 70.82 | 1236 |
| 90.000 | 25.081 | .03987 | .25576 | 33.4195 | 596.196 | 1654.0 | 1845.4 | 113.900 | 43.13 | 69.93 | 1166 |
| 100.000 | 24.514 | .04079 | .23550 | 29.3700 | 513.381 | 2346.9 | 2542.7 | 121.251 | 41.72 | 69.68 | 1098 |
| 110.000 | 23.936 | .04178 | .21926 | 25.8626 | 442.287 | 3038.8 | 3239.4 | 127.898 | 40.82 | 69.86 | 1032 |
| 120.000 | 23.344 | .04284 | .20608 | 22.7917 | 380.512 | 3734.3 | 3939.9 | 133.995 | 40.28 | 70.34 | 967 |
| 130.000 | 22.737 | .04398 | .19531 | 20.0789 | 326.270 | 4436.1 | 4647.2 | 139.653 | 40.00 | 71.08 | 903 |
| 140.000 | 22.112 | .04522 | .18648 | 17.6639 | 278.204 | 5146.3 | 5363.4 | 144.954 | 39.94 | 72.05 | 840 |
| 150.000 | 21.466 | .04659 | .17929 | 15.4987 | 235.282 | 5867.0 | 6090.6 | 149.966 | 40.07 | 73.31 | 778 |
| 160.000 | 20.793 | .04809 | .17353 | 13.5443 | 196.708 | 6600.3 | 6831.2 | 154.746 | 40.38 | 74.89 | 716 |
| 170.000 | 20.086 | .04979 | .16907 | 11.7681 | 161.870 | 7350.0 | 7588.9 | 159.344 | 40.83 | 76.88 | 655 |
| 180.000 | 19.335 | .05172 | .16588 | 10.1416 | 130.296 | 8120.7 | 8369.0 | 163.807 | 41.38 | 79.39 | 593 |
| 190.000 | 18.523 | .05399 | .16404 | 8.6386 | 101.620 | 8919.0 | 9178.1 | 168.181 | 41.93 | 82.60 | 530 |
| 200.000 | 17.623 | .05674 | .16379 | 7.2328 | 75.559 | 9753.3 | 10025.6 | 172.523 | 42.37 | 86.95 | 467 |
| 210.000 | 16.585 | .06029 | .16576 | 5.8926 | 51.897 | 10637.3 | 10926.8 | 176.913 | 42.57 | 93.65 | 401 |
| 220.000 | 15.294 | .06539 | .17158 | 4.5671 | 30.465 | 11605.3 | 11919.2 | 181.535 | 42.68 | 107.08 | 328 |
| 230.000 | 13.327 | .07504 | .18834 | 3.1121 | 11.132 | 12811.2 | 13171.4 | 187.086 | 44.94 | 157.62 | 234 |
| 240.000 | 5.165 | .19363 | .46576 | .7250 | 2.454 | 16435.5 | 17364.9 | 204.860 | 50.00 | 242.68 | 129 |
| 250.000 | 3.798 | .26333 | .60808 | .4781 | 6.476 | 17574.9 | 18838.8 | 210.894 | 46.15 | 107.34 | 145 |
| 260.000 | 3.250 | .30768 | .68317 | .3862 | 9.293 | 18304.0 | 19780.9 | 214.592 | 45.50 | 85.00 | 156 |
| 270.000 | 2.907 | .34397 | .73547 | .3319 | 11.620 | 18928.7 | 20579.8 | 217.608 | 45.60 | 75.88 | 165 |
| 280.000 | 2.660 | .37599 | .77522 | .2945 | 13.658 | 19507.9 | 21312.6 | 220.274 | 46.01 | 71.15 | 172 |
| 290.000 | 2.467 | .40530 | .80683 | .2667 | 15.500 | 20064.0 | 22009.4 | 222.719 | 46.59 | 68.44 | 179 |
| 300.000 | 2.311 | .43271 | .83269 | .2448 | 17.200 | 20608.1 | 22685.1 | 225.010 | 47.26 | 66.83 | 185 |
| 310.000 | 2.180 | .45872 | .85427 | .2270 | 18.789 | 21146.3 | 23348.1 | 227.184 | 47.97 | 65.86 | 190 |
| 320.000 | 2.068 | .48365 | .87254 | .2122 | 20.292 | 21682.2 | 24003.7 | 229.266 | 48.70 | 65.31 | 195 |
| 330.000 | 1.970 | .50771 | .88819 | .1996 | 21.723 | 22218.4 | 24655.4 | 231.271 | 49.45 | 65.05 | 200 |
| 340.000 | 1.883 | .53106 | .90172 | .1887 | 23.096 | 22756.2 | 25305.3 | 233.211 | 50.19 | 64.97 | 205 |
| 350.000 | 1.806 | .55382 | .91350 | .1791 | 24.419 | 23296.9 | 25955.2 | 235.095 | 50.92 | 65.03 | 209 |
| 360.000 | 1.736 | .57609 | .92383 | .1707 | 25.699 | 23841.0 | 26606.2 | 236.929 | 51.65 | 65.19 | 213 |
| 370.000 | 1.672 | .59792 | .93293 | .1631 | 26.942 | 24389.1 | 27259.2 | 238.718 | 52.35 | 65.41 | 217 |
| 380.000 | 1.614 | .61939 | .94100 | .1563 | 28.153 | 24941.6 | 27914.7 | 240.466 | 53.04 | 65.69 | 221 |
| 390.000 | 1.561 | .64054 | .94817 | .1501 | 29.336 | 25498.5 | 28573.1 | 242.176 | 53.71 | 66.00 | 225 |
| 400.000 | 1.512 | .66140 | .95457 | .1445 | 30.493 | 26060.0 | 29234.7 | 243.851 | 54.35 | 66.34 | 228 |
| 410.000 | 1.466 | .68201 | .96031 | .1393 | 31.628 | 26626.2 | 29899.9 | 245.493 | 54.98 | 66.69 | 232 |
| 420.000 | 1.424 | .70239 | .96546 | .1346 | 32.743 | 27197.1 | 30568.6 | 247.105 | 55.59 | 67.05 | 235 |
| 430.000 | 1.384 | .72257 | .97010 | .1302 | 33.839 | 27772.6 | 31240.9 | 248.687 | 56.18 | 67.42 | 239 |
| 440.000 | 1.347 | .74257 | .97430 | .1261 | 34.919 | 28352.6 | 31917.0 | 250.241 | 56.74 | 67.79 | 242 |
| 450.000 | 1.312 | .76241 | .97809 | .1223 | 35.984 | 28937.2 | 32596.8 | 251.769 | 57.29 | 68.16 | 245 |
| 460.000 | 1.279 | .78209 | .98153 | .1188 | 37.036 | 29526.2 | 33280.2 | 253.271 | 57.81 | 68.53 | 248 |
| 470.000 | 1.247 | .80164 | .98466 | .1154 | 38.075 | 30119.5 | 33967.3 | 254.748 | 58.32 | 68.89 | 251 |
| 480.000 | 1.218 | .82106 | .98751 | .1123 | 39.102 | 30716.9 | 34658.0 | 256.203 | 58.81 | 69.25 | 254 |
| 490.000 | 1.190 | .84037 | .99010 | .1094 | 40.119 | 31318.5 | 35352.3 | 257.634 | 59.28 | 69.60 | 257 |
| 500.000 | 1.163 | .85957 | .99247 | .1066 | 41.127 | 31924.1 | 36050.0 | 259.044 | 59.73 | 69.94 | 260 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 50 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.284 | 26.329 | .03798 | .33946 | 45.5590 | 848.939 | 42.5 | 232.5 | 93.142 | 49.64 | 73.37 | 1329 |
| 70.000 | 26.183 | .03819 | .32811 | 43.8302 | 812.729 | 239.7 | 430.7 | 96.032 | 48.52 | 72.65 | 1309 |
| 80.000 | 25.639 | .03900 | .29319 | 38.1861 | 695.098 | 953.1 | 1148.1 | 105.600 | 45.28 | 70.81 | 1237 |
| 90.000 | 25.084 | .03987 | .26638 | 33.4466 | 597.215 | 1652.4 | 1851.7 | 113.882 | 43.13 | 69.92 | 1167 |
| 100.000 | 24.518 | .04079 | .24527 | 29.3966 | 514.367 | 2345.0 | 2548.9 | 121.232 | 41.72 | 69.67 | 1099 |
| 110.000 | 23.941 | .04177 | .22835 | 25.8890 | 443.250 | 3036.6 | 3245.5 | 127.877 | 40.82 | 69.84 | 1033 |
| 120.000 | 23.350 | .04283 | .21462 | 22.8182 | 381.462 | 3731.7 | 3945.8 | 133.973 | 40.28 | 70.32 | 968 |
| 130.000 | 22.743 | .04397 | .20339 | 20.1058 | 327.213 | 4433.1 | 4652.9 | 139.629 | 40.00 | 71.05 | 904 |
| 140.000 | 22.120 | .04521 | .19419 | 17.6913 | 279.149 | 5142.8 | 5368.8 | 144.928 | 39.94 | 72.02 | 842 |
| 150.000 | 21.475 | .04657 | .18669 | 15.5269 | 236.235 | 5862.8 | 6095.6 | 149.938 | 40.07 | 73.26 | 779 |
| 160.000 | 20.803 | .04807 | .18067 | 13.5738 | 197.676 | 6595.4 | 6835.7 | 154.714 | 40.37 | 74.83 | 718 |
| 170.000 | 20.098 | .04976 | .17600 | 11.7992 | 162.861 | 7344.0 | 7592.8 | 159.308 | 40.83 | 76.80 | 656 |
| 180.000 | 19.350 | .05168 | .17266 | 10.1750 | 131.318 | 8113.4 | 8371.8 | 163.765 | 41.37 | 79.27 | 595 |
| 190.000 | 18.542 | .05393 | .17069 | 8.6753 | 102.683 | 8909.9 | 9179.5 | 168.132 | 41.92 | 82.42 | 533 |
| 200.000 | 17.649 | .05666 | .17036 | 7.2743 | 76.678 | 9741.4 | 10024.7 | 172.461 | 42.34 | 86.65 | 470 |
| 210.000 | 16.623 | .06016 | .17227 | 5.9419 | 53.094 | 10620.8 | 10921.6 | 176.831 | 42.53 | 93.06 | 404 |
| 220.000 | 15.358 | .06511 | .17798 | 4.6315 | 31.783 | 11579.0 | 11904.6 | 181.409 | 42.60 | 105.55 | 333 |
| 230.000 | 13.495 | .07410 | .19375 | 3.2237 | 12.694 | 12747.7 | 13118.2 | 186.790 | 44.62 | 148.01 | 243 |
| 240.000 | 6.214 | .16092 | .40322 | .9138 | 1.470 | 15957.6 | 16762.3 | 202.201 | 52.09 | 405.12 | 126 |
| 250.000 | 4.124 | .24251 | .58335 | .5308 | 5.811 | 17414.8 | 18627.3 | 209.845 | 46.68 | 117.97 | 143 |
| 260.000 | 3.472 | .28804 | .66621 | .4196 | 8.762 | 18194.7 | 19634.9 | 213.801 | 45.80 | 89.13 | 154 |
| 270.000 | 3.083 | .32439 | .72249 | .3569 | 11.172 | 18842.7 | 20464.6 | 216.934 | 45.80 | 78.20 | 163 |
| 280.000 | 2.808 | .35610 | .76480 | .3148 | 13.270 | 19435.8 | 21216.3 | 219.668 | 46.17 | 72.68 | 171 |
| 290.000 | 2.598 | .38494 | .79824 | .2838 | 15.160 | 20001.3 | 21926.1 | 222.159 | 46.71 | 69.55 | 178 |
| 300.000 | 2.428 | .41181 | .82548 | .2598 | 16.898 | 20552.4 | 22611.4 | 224.483 | 47.36 | 67.67 | 184 |
| 310.000 | 2.287 | .43722 | .84815 | .2404 | 18.520 | 21095.9 | 23282.0 | 226.682 | 48.05 | 66.54 | 190 |
| 320.000 | 2.167 | .46152 | .86731 | .2243 | 20.051 | 21636.2 | 23943.7 | 228.783 | 48.78 | 65.87 | 195 |
| 330.000 | 2.062 | .48493 | .88369 | .2106 | 21.508 | 22175.8 | 24600.5 | 230.804 | 49.51 | 65.52 | 200 |
| 340.000 | 1.970 | .50762 | .89783 | .1989 | 22.902 | 22716.7 | 25254.8 | 232.757 | 50.25 | 65.37 | 204 |
| 350.000 | 1.888 | .52971 | .91013 | .1886 | 24.245 | 23259.9 | 25908.4 | 234.652 | 50.97 | 65.38 | 209 |
| 360.000 | 1.814 | .55130 | .92091 | .1795 | 25.543 | 23806.3 | 26562.7 | 236.495 | 51.69 | 65.49 | 213 |
| 370.000 | 1.747 | .57245 | .93040 | .1714 | 26.803 | 24356.3 | 27218.6 | 238.292 | 52.39 | 65.69 | 217 |
| 380.000 | 1.686 | .59323 | .93880 | .1642 | 28.029 | 24910.5 | 27876.7 | 240.047 | 53.08 | 65.93 | 221 |
| 390.000 | 1.629 | .61369 | .94627 | .1576 | 29.225 | 25469.0 | 28537.4 | 241.763 | 53.74 | 66.22 | 225 |
| 400.000 | 1.578 | .63386 | .95294 | .1516 | 30.396 | 26031.9 | 29201.2 | 243.444 | 54.39 | 66.54 | 228 |
| 410.000 | 1.530 | .65377 | .95891 | .1461 | 31.542 | 26599.4 | 29868.2 | 245.091 | 55.01 | 66.87 | 232 |
| 420.000 | 1.485 | .67346 | .96427 | .1411 | 32.668 | 27171.4 | 30538.7 | 246.706 | 55.62 | 67.22 | 235 |
| 430.000 | 1.443 | .69295 | .96910 | .1364 | 33.775 | 27748.0 | 31212.7 | 248.292 | 56.20 | 67.58 | 239 |
| 440.000 | 1.404 | .71226 | .97346 | .1321 | 34.865 | 28329.0 | 31890.3 | 249.850 | 56.77 | 67.94 | 242 |
| 450.000 | 1.367 | .73140 | .97740 | .1281 | 35.939 | 28914.5 | 32571.5 | 251.380 | 57.31 | 68.30 | 245 |
| 460.000 | 1.333 | .75038 | .98098 | .1243 | 36.999 | 29504.3 | 33256.2 | 252.885 | 57.84 | 68.66 | 248 |
| 470.000 | 1.300 | .76924 | .98423 | .1208 | 38.046 | 30098.4 | 33944.5 | 254.356 | 58.34 | 69.01 | 251 |
| 480.000 | 1.269 | .78796 | .98719 | .1175 | 39.082 | 30696.6 | 34636.4 | 255.822 | 58.83 | 69.36 | 254 |
| 490.000 | 1.240 | .80657 | .98988 | .1144 | 40.106 | 31298.8 | 35331.7 | 257.256 | 59.30 | 69.70 | 257 |
| 500.000 | 1.212 | .82508 | .99234 | .1115 | 41.120 | 31905.0 | 36030.4 | 258.668 | 59.75 | 70.04 | 260 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 52 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 67.321 | 26.329 | .03798 | .35284 | 45.5642 | 849.581 | 44.2 | 241.7 | 93.167 | 49.62 | 73.35 | 1329 |
| 70.000 | 26.185 | .03819 | .34120 | 43.8592 | 813.859 | 238.7 | 437.2 | 96.016 | 48.52 | 72.65 | 1310 |
| 80.000 | 25.641 | .03900 | .30488 | 38.2139 | 696.163 | 951.7 | 1154.5 | 105.584 | 45.28 | 70.81 | 1238 |
| 90.000 | 25.087 | .03986 | .27700 | 33.4736 | 598.234 | 1650.8 | 1858.1 | 113.864 | 43.13 | 69.91 | 1168 |
| 100.000 | 24.522 | .04078 | .25504 | 29.4232 | 515.353 | 2343.1 | 2555.2 | 121.213 | 41.72 | 69.66 | 1100 |
| 110.000 | 23.945 | .04176 | .23744 | 25.9154 | 444.213 | 3034.4 | 3251.6 | 127.857 | 40.82 | 69.83 | 1034 |
| 120.000 | 23.355 | .04282 | .22316 | 22.8447 | 382.411 | 3729.1 | 3951.8 | 133.951 | 40.28 | 70.30 | 969 |
| 130.000 | 22.750 | .04396 | .21147 | 20.1326 | 328.157 | 4430.0 | 4658.6 | 139.605 | 40.00 | 71.02 | 905 |
| 140.000 | 22.127 | .04519 | .20189 | 17.7187 | 280.094 | 5139.2 | 5374.2 | 144.902 | 39.94 | 71.99 | 843 |
| 150.000 | 21.483 | .04655 | .19408 | 15.5551 | 237.187 | 5858.6 | 6100.6 | 149.909 | 40.07 | 73.22 | 781 |
| 160.000 | 20.813 | .04805 | .18781 | 13.6032 | 198.643 | 6590.4 | 6840.2 | 154.683 | 40.37 | 74.78 | 719 |
| 170.000 | 20.111 | .04972 | .18293 | 11.8303 | 163.850 | 7338.1 | 7596.6 | 159.272 | 40.82 | 76.72 | 658 |
| 180.000 | 19.365 | .05164 | .17942 | 10.2083 | 132.337 | 8106.2 | 8374.7 | 163.724 | 41.36 | 79.16 | 597 |
| 190.000 | 18.562 | .05387 | .17734 | 8.7117 | 103.743 | 8900.9 | 9181.0 | 168.083 | 41.90 | 82.25 | 535 |
| 200.000 | 17.675 | .05658 | .17692 | 7.3153 | 77.791 | 9729.7 | 10023.9 | 172.401 | 42.32 | 86.36 | 472 |
| 210.000 | 16.660 | .06002 | .17876 | 5.9903 | 54.280 | 10604.7 | 10916.8 | 176.751 | 42.49 | 92.50 | 407 |
| 220.000 | 15.420 | .06485 | .18436 | 4.6939 | 33.081 | 11553.6 | 11890.9 | 181.287 | 42.51 | 104.14 | 337 |
| 230.000 | 13.644 | .07329 | .19930 | 3.3257 | 14.198 | 12691.0 | 13072.1 | 186.525 | 44.35 | 140.60 | 251 |
| 240.000 | 7.854 | .12732 | .33177 | 1.2313 | 1.180 | 15276.5 | 15938.5 | 198.649 | 53.50 | 553.46 | 131 |
| 250.000 | 4.489 | .22278 | .55733 | .5912 | 5.161 | 17239.2 | 18397.7 | 208.740 | 47.26 | 131.27 | 142 |
| 260.000 | 3.707 | .26975 | .64888 | .4557 | 8.243 | 18080.1 | 19482.8 | 213.002 | 46.11 | 93.78 | 153 |
| 270.000 | 3.265 | .30624 | .70937 | .3834 | 10.733 | 18754.0 | 20346.4 | 216.263 | 46.01 | 80.70 | 162 |
| 280.000 | 2.961 | .33771 | .75432 | .3360 | 12.890 | 19362.1 | 21118.2 | 219.070 | 46.33 | 74.30 | 170 |
| 290.000 | 2.731 | .36614 | .78962 | .3017 | 14.825 | 19937.7 | 21841.6 | 221.609 | 46.84 | 70.70 | 177 |
| 300.000 | 2.548 | .39251 | .81826 | .2753 | 16.601 | 20496.0 | 22537.0 | 223.967 | 47.46 | 68.55 | 183 |
| 310.000 | 2.396 | .41737 | .84203 | .2541 | 18.256 | 21045.1 | 23215.4 | 226.191 | 48.14 | 67.24 | 189 |
| 320.000 | 2.267 | .44109 | .86208 | .2366 | 19.815 | 21589.8 | 23883.4 | 228.312 | 48.85 | 66.44 | 194 |
| 330.000 | 2.156 | .46391 | .87919 | .2219 | 21.296 | 22133.1 | 24545.4 | 230.349 | 49.58 | 65.99 | 199 |
| 340.000 | 2.058 | .48598 | .89395 | .2092 | 22.712 | 22677.0 | 25204.1 | 232.316 | 50.30 | 65.78 | 204 |
| 350.000 | 1.971 | .50746 | .90677 | .1982 | 24.074 | 23222.8 | 25861.6 | 234.221 | 51.03 | 65.73 | 208 |
| 360.000 | 1.892 | .52842 | .91800 | .1885 | 25.390 | 23771.4 | 26519.2 | 236.074 | 51.74 | 65.81 | 213 |
| 370.000 | 1.822 | .54894 | .92788 | .1799 | 26.666 | 24323.5 | 27178.0 | 237.879 | 52.43 | 65.96 | 217 |
| 380.000 | 1.757 | .56909 | .93662 | .1721 | 27.907 | 24879.4 | 27838.7 | 239.641 | 53.12 | 66.18 | 221 |
| 390.000 | 1.698 | .58891 | .94439 | .1651 | 29.117 | 25439.4 | 28501.8 | 241.363 | 53.78 | 66.45 | 225 |
| 400.000 | 1.644 | .60844 | .95132 | .1588 | 30.300 | 26003.8 | 29167.7 | 243.049 | 54.42 | 66.74 | 228 |
| 410.000 | 1.593 | .62772 | .95752 | .1530 | 31.458 | 26572.5 | 29836.7 | 244.701 | 55.04 | 67.06 | 232 |
| 420.000 | 1.546 | .64677 | .96309 | .1476 | 32.595 | 27145.7 | 30508.9 | 246.321 | 55.65 | 67.39 | 235 |
| 430.000 | 1.502 | .66561 | .96810 | .1427 | 33.712 | 27723.4 | 31184.5 | 247.911 | 56.23 | 67.73 | 239 |
| 440.000 | 1.461 | .68428 | .97263 | .1381 | 34.812 | 28305.4 | 31863.6 | 249.472 | 56.79 | 68.08 | 242 |
| 450.000 | 1.423 | .70277 | .97672 | .1339 | 35.895 | 28891.8 | 32546.2 | 251.006 | 57.34 | 68.43 | 245 |
| 460.000 | 1.387 | .72112 | .98043 | .1299 | 36.964 | 29482.4 | 33232.3 | 252.514 | 57.86 | 68.78 | 248 |
| 470.000 | 1.353 | .73933 | .98380 | .1262 | 38.019 | 30077.3 | 33921.8 | 253.997 | 58.36 | 69.13 | 251 |
| 480.000 | 1.320 | .75741 | .98687 | .1227 | 39.061 | 30676.3 | 34614.8 | 255.456 | 58.85 | 69.47 | 254 |
| 490.000 | 1.290 | .77538 | .98966 | .1195 | 40.093 | 31279.2 | 35311.2 | 256.891 | 59.32 | 69.81 | 257 |
| 500.000 | 1.261 | .79324 | .99221 | .1164 | 41.114 | 31886.1 | 36010.9 | 258.305 | 59.77 | 70.14 | 260 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 55 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.376 | 26.330 | .03798 | .37288 | 45.5719 | 850.544 | 46.7 | 255.6 | 93.205 | 49.60 | 73.33 | 1330 |
| 70.000 | 26.189 | .03818 | .36084 | 43.9027 | 815.553 | 237.0 | 447.0 | 95.992 | 48.51 | 72.64 | 1311 |
| 80.000 | 25.646 | .03899 | .32242 | 38.2555 | 697.761 | 949.8 | 1164.2 | 105.559 | 45.28 | 70.79 | 1239 |
| 90.000 | 25.092 | .03985 | .29292 | 33.5141 | 599.762 | 1648.5 | 1867.7 | 113.838 | 43.13 | 69.90 | 1170 |
| 100.000 | 24.528 | .04077 | .26969 | 29.4630 | 516.831 | 2340.3 | 2564.6 | 121.184 | 41.72 | 69.64 | 1102 |
| 110.000 | 23.952 | .04175 | .25107 | 25.9550 | 445.657 | 3031.2 | 3260.8 | 127.826 | 40.82 | 69.80 | 1036 |
| 120.000 | 23.363 | .04280 | .23595 | 22.8844 | 383.834 | 3725.2 | 3960.7 | 133.918 | 40.28 | 70.27 | 971 |
| 130.000 | 22.759 | .04394 | .22358 | 20.1727 | 329.570 | 4425.5 | 4667.2 | 139.570 | 40.00 | 70.99 | 907 |
| 140.000 | 22.137 | .04517 | .21344 | 17.7596 | 281.508 | 5133.9 | 5382.4 | 144.864 | 39.93 | 71.94 | 845 |
| 150.000 | 21.496 | .04652 | .20516 | 15.5973 | 238.614 | 5852.4 | 6108.2 | 149.867 | 40.06 | 73.16 | 783 |
| 160.000 | 20.828 | .04801 | .19850 | 13.6471 | 200.091 | 6583.0 | 6847.1 | 154.635 | 40.36 | 74.69 | 722 |
| 170.000 | 20.129 | .04968 | .19331 | 11.8765 | 165.330 | 7329.2 | 7602.5 | 159.219 | 40.81 | 76.61 | 661 |
| 180.000 | 19.388 | .05158 | .18955 | 10.2578 | 133.861 | 8095.5 | 8379.2 | 163.663 | 41.35 | 78.99 | 600 |
| 190.000 | 18.590 | .05379 | .18728 | 8.7658 | 105.324 | 8887.5 | 9183.4 | 168.010 | 41.88 | 81.99 | 538 |
| 200.000 | 17.713 | .05645 | .18672 | 7.3761 | 79.448 | 9712.5 | 10023.0 | 172.311 | 42.29 | 85.94 | 476 |
| 210.000 | 16.715 | .05983 | .18845 | 6.0616 | 56.042 | 10581.0 | 10910.1 | 176.633 | 42.43 | 91.71 | 413 |
| 220.000 | 15.508 | .06448 | .19389 | 4.7844 | 34.994 | 11517.2 | 11871.8 | 181.113 | 42.40 | 102.24 | 344 |
| 230.000 | 13.840 | .07225 | .20781 | 3.4652 | 16.365 | 12615.3 | 13012.7 | 186.172 | 44.02 | 132.12 | 263 |
| 240.000 | 9.903 | .10098 | .27832 | 1.7271 | 2.064 | 14502.1 | 15057.4 | 194.838 | 52.00 | 405.73 | 150 |
| 250.000 | 5.129 | .19496 | .51586 | .7006 | 4.251 | 16940.6 | 18012.9 | 206.951 | 48.16 | 157.88 | 140 |
| 260.000 | 4.089 | .24457 | .62223 | .5159 | 7.492 | 17897.4 | 19242.5 | 211.781 | 46.59 | 101.84 | 151 |
| 270.000 | 3.554 | .28141 | .68944 | .4263 | 10.095 | 18615.7 | 20163.5 | 215.259 | 46.34 | 84.82 | 161 |
| 280.000 | 3.199 | .31259 | .73850 | .3698 | 12.336 | 19248.5 | 20967.8 | 218.185 | 46.56 | 76.89 | 169 |
| 290.000 | 2.937 | .34049 | .77665 | .3298 | 14.337 | 19840.3 | 21712.9 | 220.800 | 47.02 | 72.53 | 176 |
| 300.000 | 2.731 | .36619 | .80743 | .2994 | 16.168 | 20410.1 | 22424.1 | 223.211 | 47.61 | 69.92 | 182 |
| 310.000 | 2.562 | .39031 | .83287 | .2754 | 17.869 | 20967.9 | 23114.6 | 225.476 | 48.27 | 68.31 | 188 |
| 320.000 | 2.420 | .41325 | .85425 | .2557 | 19.468 | 21519.5 | 23792.4 | 227.627 | 48.96 | 67.32 | 194 |
| 330.000 | 2.298 | .43525 | .87247 | .2393 | 20.985 | 22068.5 | 24462.3 | 229.689 | 49.67 | 66.73 | 199 |
| 340.000 | 2.191 | .45650 | .88815 | .2252 | 22.433 | 22617.1 | 25127.8 | 231.676 | 50.39 | 66.41 | 204 |
| 350.000 | 2.096 | .47713 | .90176 | .2130 | 23.824 | 23166.9 | 25791.1 | 233.598 | 51.10 | 66.27 | 208 |
| 360.000 | 2.011 | .49723 | .91366 | .2023 | 25.166 | 23719.0 | 26453.8 | 235.465 | 51.81 | 66.28 | 212 |
| 370.000 | 1.935 | .51690 | .92412 | .1928 | 26.465 | 24274.1 | 27117.0 | 237.282 | 52.50 | 66.38 | 217 |
| 380.000 | 1.865 | .53618 | .93337 | .1843 | 27.728 | 24832.7 | 27781.7 | 239.055 | 53.17 | 66.56 | 221 |
| 390.000 | 1.801 | .55513 | .94158 | .1767 | 28.958 | 25395.1 | 28448.3 | 240.786 | 53.83 | 66.78 | 224 |
| 400.000 | 1.743 | .57379 | .94890 | .1697 | 30.160 | 25961.6 | 29117.5 | 242.480 | 54.47 | 67.05 | 228 |
| 410.000 | 1.689 | .59220 | .95545 | .1634 | 31.335 | 26532.3 | 29789.4 | 244.140 | 55.09 | 67.34 | 232 |
| 420.000 | 1.638 | .61037 | .96133 | .1576 | 32.488 | 27107.2 | 30464.3 | 245.766 | 55.69 | 67.65 | 235 |
| 430.000 | 1.591 | .62834 | .96662 | .1522 | 33.621 | 27686.5 | 31142.4 | 247.362 | 56.27 | 67.97 | 239 |
| 440.000 | 1.548 | .64613 | .97139 | .1473 | 34.734 | 28270.0 | 31823.8 | 248.928 | 56.83 | 68.30 | 242 |
| 450.000 | 1.507 | .66375 | .97571 | .1427 | 35.831 | 28857.8 | 32508.4 | 250.466 | 57.37 | 68.64 | 245 |
| 460.000 | 1.468 | .68122 | .97962 | .1384 | 36.912 | 29449.7 | 33196.5 | 251.979 | 57.89 | 68.97 | 248 |
| 470.000 | 1.432 | .69855 | .98317 | .1344 | 37.979 | 30045.8 | 33887.8 | 253.466 | 58.40 | 69.30 | 251 |
| 480.000 | 1.397 | .71576 | .98640 | .1306 | 39.033 | 30645.9 | 34582.5 | 254.928 | 58.88 | 69.64 | 254 |
| 490.000 | 1.365 | .73285 | .98934 | .1271 | 40.075 | 31249.9 | 35280.5 | 256.367 | 59.35 | 69.96 | 257 |
| 500.000 | 1.334 | .74984 | .99203 | .1238 | 41.106 | 31857.7 | 35981.8 | 257.784 | 59.80 | 70.28 | 260 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 60 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.469 | 26.331 | .03798 | .40621 | 45.5849 | 852.149 | 50.9 | 278.8 | 93.267 | 49.56 | 73.29 | 1332 |
| 70.000 | 26.195 | .03818 | .39355 | 43.9751 | 818.377 | 234.3 | 463.4 | 95.953 | 48.51 | 72.62 | 1313 |
| 80.000 | 25.653 | .03898 | .35163 | 38.3248 | 700.424 | 946.5 | 1180.4 | 105.517 | 45.28 | 70.77 | 1241 |
| 90.000 | 25.101 | .03984 | .31944 | 33.5814 | 602.308 | 1644.6 | 1883.6 | 113.793 | 43.13 | 69.87 | 1172 |
| 100.000 | 24.538 | .04075 | .29409 | 29.5292 | 519.292 | 2335.7 | 2580.2 | 121.137 | 41.72 | 69.61 | 1104 |
| 110.000 | 23.963 | .04173 | .27377 | 26.0207 | 448.061 | 3025.7 | 3276.1 | 127.776 | 40.82 | 69.76 | 1038 |
| 120.000 | 23.376 | .04278 | .25726 | 22.9503 | 386.202 | 3718.8 | 3975.5 | 133.864 | 40.27 | 70.22 | 973 |
| 130.000 | 22.774 | .04391 | .24375 | 20.2393 | 331.922 | 4418.0 | 4681.5 | 139.511 | 39.99 | 70.92 | 910 |
| 140.000 | 22.155 | .04514 | .23266 | 17.8275 | 283.861 | 5125.2 | 5396.0 | 144.800 | 39.93 | 71.86 | 848 |
| 150.000 | 21.516 | .04648 | .22359 | 15.6672 | 240.984 | 5842.0 | 6120.9 | 149.796 | 40.05 | 73.05 | 786 |
| 160.000 | 20.853 | .04795 | .21628 | 13.7198 | 202.496 | 6570.8 | 6858.6 | 154.557 | 40.35 | 74.55 | 725 |
| 170.000 | 20.159 | .04961 | .21057 | 11.9531 | 167.785 | 7314.7 | 7612.3 | 159.131 | 40.79 | 76.41 | 665 |
| 180.000 | 19.425 | .05148 | .20639 | 10.3395 | 136.385 | 8077.8 | 8386.7 | 163.561 | 41.32 | 78.72 | 604 |
| 190.000 | 18.637 | .05366 | .20379 | 8.8547 | 107.939 | 8865.6 | 9187.6 | 167.891 | 41.85 | 81.58 | 544 |
| 200.000 | 17.775 | .05626 | .20299 | 7.4754 | 82.182 | 9684.5 | 10022.0 | 172.165 | 42.23 | 85.27 | 483 |
| 210.000 | 16.802 | .05952 | .20452 | 6.1769 | 58.932 | 10543.0 | 10900.1 | 176.444 | 42.34 | 90.50 | 421 |
| 220.000 | 15.645 | .06392 | .20967 | 4.9276 | 38.104 | 11460.2 | 11843.7 | 180.839 | 42.23 | 99.51 | 355 |
| 230.000 | 14.117 | .07084 | .22225 | 3.6714 | 19.799 | 12507.1 | 12932.1 | 185.666 | 43.60 | 122.17 | 279 |
| 240.000 | 11.404 | .08769 | .26367 | 2.2399 | 5.189 | 13953.8 | 14479.9 | 192.238 | 49.75 | 228.20 | 183 |
| 250.000 | 6.508 | .15365 | .44351 | .9522 | 3.209 | 16336.8 | 17258.7 | 203.586 | 49.52 | 216.30 | 140 |
| 260.000 | 4.814 | .20773 | .57657 | .6353 | 6.364 | 17561.3 | 18807.7 | 209.674 | 47.41 | 118.57 | 149 |
| 270.000 | 4.075 | .24538 | .65583 | .5069 | 9.106 | 18370.9 | 19843.2 | 213.585 | 46.88 | 92.74 | 159 |
| 280.000 | 3.620 | .27627 | .71203 | .4315 | 11.466 | 19051.2 | 20708.8 | 216.735 | 46.96 | 81.67 | 167 |
| 290.000 | 3.296 | .30344 | .75507 | .3803 | 13.567 | 19672.8 | 21493.4 | 219.489 | 47.34 | 75.80 | 174 |
| 300.000 | 3.047 | .32820 | .78946 | .3424 | 15.482 | 20263.5 | 22232.7 | 221.995 | 47.86 | 72.34 | 181 |
| 310.000 | 2.847 | .35127 | .81769 | .3130 | 17.255 | 20837.0 | 22944.6 | 224.330 | 48.48 | 70.20 | 187 |
| 320.000 | 2.680 | .37307 | .84132 | .2892 | 18.917 | 21400.8 | 23639.2 | 226.535 | 49.14 | 68.84 | 193 |
| 330.000 | 2.539 | .39391 | .86138 | .2695 | 20.490 | 21959.6 | 24323.0 | 228.640 | 49.83 | 67.99 | 198 |
| 340.000 | 2.416 | .41395 | .87859 | .2529 | 21.988 | 22516.4 | 25000.1 | 230.660 | 50.53 | 67.47 | 203 |
| 350.000 | 2.308 | .43336 | .89350 | .2385 | 23.424 | 23073.1 | 25673.3 | 232.612 | 51.23 | 67.19 | 208 |
| 360.000 | 2.211 | .45223 | .90651 | .2260 | 24.808 | 23631.1 | 26344.5 | 234.503 | 51.92 | 67.08 | 212 |
| 370.000 | 2.125 | .47065 | .91794 | .2150 | 26.145 | 24191.4 | 27015.3 | 236.341 | 52.60 | 67.09 | 216 |
| 380.000 | 2.046 | .48868 | .92803 | .2052 | 27.442 | 24754.6 | 27686.7 | 238.131 | 53.27 | 67.19 | 220 |
| 390.000 | 1.975 | .50638 | .93697 | .1964 | 28.705 | 25321.1 | 28359.4 | 239.878 | 53.92 | 67.35 | 224 |
| 400.000 | 1.909 | .52378 | .94494 | .1884 | 29.936 | 25891.2 | 29033.9 | 241.586 | 54.55 | 67.56 | 228 |
| 410.000 | 1.849 | .54092 | .95206 | .1812 | 31.140 | 26465.2 | 29710.8 | 243.258 | 55.17 | 67.81 | 232 |
| 420.000 | 1.793 | .55783 | .95845 | .1745 | 32.319 | 27043.2 | 30390.2 | 244.895 | 55.76 | 68.08 | 235 |
| 430.000 | 1.741 | .57454 | .96420 | .1684 | 33.476 | 27625.2 | 31072.4 | 246.500 | 56.34 | 68.37 | 239 |
| 440.000 | 1.692 | .59106 | .96938 | .1628 | 34.612 | 28211.2 | 31757.6 | 248.075 | 56.89 | 68.67 | 242 |
| 450.000 | 1.646 | .60741 | .97406 | .1576 | 35.730 | 28801.3 | 32445.8 | 249.622 | 57.43 | 68.97 | 245 |
| 460.000 | 1.604 | .62361 | .97830 | .1528 | 36.832 | 29395.4 | 33137.1 | 251.141 | 57.95 | 69.29 | 249 |
| 470.000 | 1.563 | .63968 | .98215 | .1483 | 37.918 | 29993.4 | 33831.5 | 252.635 | 58.45 | 69.60 | 252 |
| 480.000 | 1.525 | .65562 | .98565 | .1440 | 38.990 | 30595.4 | 34529.1 | 254.103 | 58.93 | 69.91 | 255 |
| 490.000 | 1.489 | .67144 | .98884 | .1401 | 40.049 | 31201.1 | 35229.7 | 255.548 | 59.40 | 70.22 | 258 |
| 500.000 | 1.455 | .68716 | .99175 | .1364 | 41.097 | 31810.6 | 35933.5 | 256.970 | 59.85 | 70.53 | 261 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 65 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.562 | 26.332 | .03798 | .43944 | 45.5978 | 853.755 | 55.1 | 302.0 | 93.329 | 49.51 | 73.24 | 1333 |
| 70.000 | 26.201 | .03817 | .42624 | 44.0474 | 821.201 | 231.7 | 479.7 | 95.914 | 48.51 | 72.60 | 1315 |
| 80.000 | 25.660 | .03897 | .38083 | 38.3940 | 703.087 | 943.2 | 1196.6 | 105.475 | 45.28 | 70.75 | 1243 |
| 90.000 | 25.109 | .03983 | .34595 | 33.6486 | 604.853 | 1640.7 | 1899.5 | 113.749 | 43.12 | 69.85 | 1174 |
| 100.000 | 24.547 | .04074 | .31848 | 29.5953 | 521.752 | 2331.1 | 2595.9 | 121.090 | 41.71 | 69.57 | 1107 |
| 110.000 | 23.974 | .04171 | .29644 | 26.0863 | 450.462 | 3020.3 | 3291.4 | 127.725 | 40.81 | 69.73 | 1041 |
| 120.000 | 23.388 | .04276 | .27854 | 23.0159 | 388.567 | 3712.5 | 3990.4 | 133.809 | 40.27 | 70.17 | 976 |
| 130.000 | 22.789 | .04388 | .26388 | 20.3057 | 334.269 | 4410.6 | 4695.8 | 139.452 | 39.99 | 70.86 | 913 |
| 140.000 | 22.173 | .04510 | .25184 | 17.8951 | 286.208 | 5116.5 | 5409.6 | 144.736 | 39.92 | 71.78 | 851 |
| 150.000 | 21.537 | .04643 | .24199 | 15.7367 | 243.347 | 5831.8 | 6133.6 | 149.726 | 40.04 | 72.95 | 790 |
| 160.000 | 20.878 | .04790 | .23403 | 13.7919 | 204.890 | 6558.8 | 6870.1 | 154.480 | 40.34 | 74.42 | 729 |
| 170.000 | 20.188 | .04953 | .22778 | 12.0288 | 170.227 | 7300.3 | 7622.3 | 159.044 | 40.78 | 76.23 | 669 |
| 180.000 | 19.461 | .05138 | .22317 | 10.4202 | 138.892 | 8060.5 | 8394.5 | 163.462 | 41.30 | 78.46 | 609 |
| 190.000 | 18.683 | .05352 | .22023 | 8.9422 | 110.530 | 8844.2 | 9192.1 | 167.774 | 41.81 | 81.19 | 549 |
| 200.000 | 17.835 | .05607 | .21917 | 7.5724 | 84.881 | 9657.2 | 10021.7 | 172.023 | 42.18 | 84.66 | 489 |
| 210.000 | 16.885 | .05923 | .22048 | 6.2883 | 61.772 | 10506.6 | 10891.5 | 176.262 | 42.27 | 89.42 | 429 |
| 220.000 | 15.771 | .06341 | .22532 | 5.0628 | 41.127 | 11407.1 | 11819.3 | 180.583 | 42.10 | 97.22 | 365 |
| 230.000 | 14.351 | .06968 | .23685 | 3.8543 | 23.065 | 12414.5 | 12867.4 | 185.232 | 43.29 | 115.22 | 294 |
| 240.000 | 12.150 | .08231 | .26810 | 2.5707 | 8.467 | 13677.5 | 14212.5 | 190.947 | 48.65 | 175.54 | 207 |
| 250.000 | 8.059 | .12408 | .38802 | 1.2764 | 3.430 | 15709.3 | 16515.9 | 200.340 | 49.98 | 232.80 | 150 |
| 260.000 | 5.662 | .17661 | .53104 | .7838 | 5.507 | 17185.4 | 18333.4 | 207.481 | 48.16 | 138.63 | 149 |
| 270.000 | 4.653 | .21492 | .62229 | .6004 | 8.249 | 18107.8 | 19504.7 | 211.906 | 47.41 | 101.92 | 158 |
| 280.000 | 4.072 | .24561 | .68574 | .5008 | 10.685 | 18843.7 | 20440.1 | 215.310 | 47.36 | 87.00 | 166 |
| 290.000 | 3.674 | .27217 | .73370 | .4357 | 12.864 | 19499.1 | 21268.2 | 218.217 | 47.65 | 79.35 | 173 |
| 300.000 | 3.377 | .29614 | .77170 | .3890 | 14.849 | 20112.8 | 22037.7 | 220.826 | 48.12 | 74.92 | 180 |
| 310.000 | 3.142 | .31831 | .80273 | .3532 | 16.685 | 20703.2 | 22772.2 | 223.234 | 48.69 | 72.18 | 186 |
| 320.000 | 2.948 | .33916 | .82858 | .3248 | 18.404 | 21280.0 | 23484.6 | 225.496 | 49.32 | 70.42 | 192 |
| 330.000 | 2.786 | .35900 | .85046 | .3015 | 20.027 | 21849.3 | 24182.8 | 227.645 | 49.99 | 69.29 | 197 |
| 340.000 | 2.645 | .37802 | .86920 | .2819 | 21.572 | 22414.6 | 24871.8 | 229.701 | 50.67 | 68.57 | 202 |
| 350.000 | 2.523 | .39639 | .88539 | .2652 | 23.050 | 22978.6 | 25555.1 | 231.682 | 51.35 | 68.14 | 207 |
| 360.000 | 2.414 | .41422 | .89950 | .2508 | 24.472 | 23542.8 | 26235.2 | 233.598 | 52.03 | 67.90 | 212 |
| 370.000 | 2.317 | .43158 | .91188 | .2381 | 25.845 | 24108.4 | 26913.7 | 235.457 | 52.70 | 67.81 | 216 |
| 380.000 | 2.229 | .44855 | .92279 | .2268 | 27.175 | 24676.3 | 27591.8 | 237.266 | 53.36 | 67.83 | 220 |
| 390.000 | 2.150 | .46518 | .93246 | .2167 | 28.468 | 25246.9 | 28270.6 | 239.029 | 54.01 | 67.93 | 224 |
| 400.000 | 2.077 | .48151 | .94107 | .2077 | 29.728 | 25820.8 | 28950.6 | 240.750 | 54.63 | 68.08 | 228 |
| 410.000 | 2.010 | .49758 | .94876 | .1994 | 30.958 | 26398.2 | 29632.4 | 242.434 | 55.24 | 68.28 | 232 |
| 420.000 | 1.948 | .51342 | .95565 | .1919 | 32.162 | 26979.2 | 30316.4 | 244.082 | 55.83 | 68.51 | 235 |
| 430.000 | 1.890 | .52905 | .96184 | .1851 | 33.342 | 27563.9 | 31002.7 | 245.697 | 56.40 | 68.77 | 239 |
| 440.000 | 1.837 | .54449 | .96742 | .1787 | 34.501 | 28152.5 | 31691.7 | 247.281 | 56.96 | 69.03 | 242 |
| 450.000 | 1.786 | .55977 | .97247 | .1729 | 35.639 | 28745.0 | 32383.5 | 248.835 | 57.49 | 69.32 | 246 |
| 460.000 | 1.739 | .57490 | .97703 | .1675 | 36.760 | 29341.2 | 33078.1 | 250.362 | 58.01 | 69.60 | 249 |
| 470.000 | 1.695 | .58989 | .98118 | .1624 | 37.865 | 29941.3 | 33775.5 | 251.862 | 58.50 | 69.89 | 252 |
| 480.000 | 1.654 | .60475 | .98494 | .1577 | 38.955 | 30545.1 | 34476.0 | 253.337 | 58.98 | 70.19 | 255 |
| 490.000 | 1.614 | .61950 | .98837 | .1533 | 40.031 | 31152.6 | 35179.3 | 254.787 | 59.45 | 70.48 | 258 |
| 500.000 | 1.577 | .63414 | .99150 | .1491 | 41.094 | 31763.7 | 35885.6 | 256.214 | 59.89 | 70.77 | 261 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 70 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.654 | 26.333 | .03798 | .47258 | 45.6108 | 855.361 | 59.3 | 325.1 | 93.390 | 49.47 | 73.20 | 1335 |
| 70.000 | 26.207 | .03816 | .45893 | 44.1196 | 824.025 | 229.0 | 496.1 | 95.875 | 48.51 | 72.59 | 1317 |
| 80.000 | 25.667 | .03896 | .41001 | 38.4631 | 705.749 | 940.0 | 1212.7 | 105.434 | 45.28 | 70.73 | 1246 |
| 90.000 | 25.117 | .03981 | .37243 | 33.7157 | 607.396 | 1636.8 | 1915.5 | 113.705 | 43.12 | 69.82 | 1176 |
| 100.000 | 24.557 | .04072 | .34284 | 29.6611 | 524.211 | 2326.5 | 2611.5 | 121.043 | 41.71 | 69.54 | 1109 |
| 110.000 | 23.985 | .04169 | .31910 | 26.1516 | 452.861 | 3014.9 | 3306.7 | 127.675 | 40.81 | 69.69 | 1043 |
| 120.000 | 23.401 | .04273 | .29981 | 23.0814 | 390.928 | 3706.2 | 4005.3 | 133.755 | 40.26 | 70.13 | 979 |
| 130.000 | 22.804 | .04385 | .28400 | 20.3717 | 336.612 | 4403.2 | 4710.1 | 139.394 | 39.98 | 70.80 | 916 |
| 140.000 | 22.190 | .04507 | .27100 | 17.9624 | 288.550 | 5107.8 | 5423.3 | 144.672 | 39.91 | 71.70 | 854 |
| 150.000 | 21.558 | .04639 | .26036 | 15.8058 | 245.703 | 5821.7 | 6146.4 | 149.657 | 40.03 | 72.85 | 793 |
| 160.000 | 20.902 | .04784 | .25174 | 13.8635 | 207.275 | 6546.9 | 6881.8 | 154.403 | 40.33 | 74.28 | 733 |
| 170.000 | 20.218 | .04946 | .24495 | 12.1039 | 172.657 | 7286.1 | 7632.4 | 158.957 | 40.76 | 76.05 | 673 |
| 180.000 | 19.497 | .05129 | .23990 | 10.4999 | 141.382 | 8043.4 | 8402.4 | 163.363 | 41.28 | 78.20 | 614 |
| 190.000 | 18.728 | .05340 | .23661 | 9.0282 | 113.099 | 8823.3 | 9197.1 | 167.659 | 41.78 | 80.82 | 555 |
| 200.000 | 17.893 | .05589 | .23526 | 7.6673 | 87.549 | 9630.8 | 10022.0 | 171.885 | 42.13 | 84.08 | 496 |
| 210.000 | 16.964 | .05895 | .23633 | 6.3961 | 64.564 | 10471.6 | 10884.3 | 176.086 | 42.19 | 88.43 | 436 |
| 220.000 | 15.888 | .06294 | .24086 | 5.1912 | 44.077 | 11357.4 | 11798.0 | 180.343 | 41.97 | 95.25 | 375 |
| 230.000 | 14.554 | .06871 | .25151 | 4.0205 | 26.202 | 12333.0 | 12814.0 | 184.850 | 43.03 | 110.02 | 307 |
| 240.000 | 12.651 | .07905 | .27729 | 2.8277 | 11.640 | 13488.6 | 14041.9 | 190.068 | 47.98 | 150.99 | 227 |
| 250.000 | 9.372 | .10670 | .35931 | 1.6079 | 4.331 | 15205.4 | 15952.3 | 197.856 | 49.61 | 219.51 | 164 |
| 260.000 | 6.611 | .15127 | .48984 | .9633 | 5.145 | 16784.6 | 17843.5 | 205.283 | 48.72 | 156.32 | 152 |
| 270.000 | 5.286 | .18916 | .58984 | .7087 | 7.582 | 17828.2 | 19152.3 | 210.227 | 47.90 | 111.89 | 157 |
| 280.000 | 4.555 | .21953 | .66008 | .5783 | 10.019 | 18626.9 | 20163.6 | 213.907 | 47.74 | 92.77 | 165 |
| 290.000 | 4.073 | .24553 | .71281 | .4965 | 12.243 | 19319.6 | 21038.3 | 216.978 | 47.95 | 83.15 | 172 |
| 300.000 | 3.720 | .26880 | .75434 | .4392 | 14.280 | 19958.4 | 21839.9 | 219.696 | 48.36 | 77.64 | 179 |
| 310.000 | 3.446 | .29019 | .78809 | .3962 | 16.168 | 20566.8 | 22598.1 | 222.182 | 48.90 | 74.25 | 185 |
| 320.000 | 3.224 | .31020 | .81613 | .3625 | 17.935 | 21157.5 | 23328.9 | 224.503 | 49.50 | 72.06 | 191 |
| 330.000 | 3.038 | .32917 | .83979 | .3352 | 19.603 | 21737.7 | 24041.9 | 226.697 | 50.14 | 70.63 | 197 |
| 340.000 | 2.879 | .34731 | .86002 | .3124 | 21.189 | 22312.0 | 24743.2 | 228.790 | 50.81 | 69.70 | 202 |
| 350.000 | 2.741 | .36479 | .87747 | .2931 | 22.705 | 22883.4 | 25436.9 | 230.801 | 51.47 | 69.10 | 207 |
| 360.000 | 2.620 | .38170 | .89266 | .2765 | 24.162 | 23454.0 | 26125.9 | 232.742 | 52.14 | 68.74 | 211 |
| 370.000 | 2.512 | .39815 | .90596 | .2619 | 25.568 | 24025.1 | 26812.2 | 234.623 | 52.80 | 68.55 | 216 |
| 380.000 | 2.414 | .41421 | .91769 | .2491 | 26.929 | 24597.8 | 27497.2 | 236.449 | 53.45 | 68.48 | 220 |
| 390.000 | 2.326 | .42991 | .92807 | .2377 | 28.250 | 25172.7 | 28182.1 | 238.228 | 54.09 | 68.51 | 224 |
| 400.000 | 2.246 | .44532 | .93730 | .2275 | 29.536 | 25750.4 | 28867.6 | 239.964 | 54.71 | 68.61 | 228 |
| 410.000 | 2.172 | .46047 | .94554 | .2182 | 30.792 | 26331.1 | 29554.4 | 241.660 | 55.31 | 68.76 | 232 |
| 420.000 | 2.104 | .47539 | .95292 | .2098 | 32.019 | 26915.2 | 30242.9 | 243.319 | 55.90 | 68.95 | 235 |
| 430.000 | 2.040 | .49009 | .95956 | .2021 | 33.221 | 27502.8 | 30933.5 | 244.944 | 56.47 | 69.16 | 239 |
| 440.000 | 1.982 | .50461 | .96554 | .1950 | 34.400 | 28094.0 | 31626.3 | 246.537 | 57.02 | 69.40 | 242 |
| 450.000 | 1.927 | .51897 | .97093 | .1885 | 35.559 | 28688.8 | 32321.6 | 248.099 | 57.55 | 69.66 | 246 |
| 460.000 | 1.876 | .53317 | .97582 | .1824 | 36.699 | 29287.2 | 33019.4 | 249.633 | 58.06 | 69.92 | 249 |
| 470.000 | 1.827 | .54723 | .98025 | .1768 | 37.821 | 29889.3 | 33720.0 | 251.139 | 58.56 | 70.19 | 252 |
| 480.000 | 1.782 | .56117 | .98428 | .1716 | 38.928 | 30495.0 | 34423.2 | 252.620 | 59.03 | 70.46 | 255 |
| 490.000 | 1.739 | .57500 | .98794 | .1667 | 40.020 | 31104.3 | 35129.3 | 254.076 | 59.49 | 70.74 | 258 |
| 500.000 | 1.699 | .58872 | .99128 | .1621 | 41.098 | 31717.0 | 35838.0 | 255.508 | 59.94 | 71.01 | 261 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 75 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.746 | 26.334 | .03797 | .50563 | 45.6237 | 856.967 | 63.4 | 348.3 | 93.452 | 49.43 | 73.16 | 1336 |
| 70.000 | 26.213 | .03815 | .49159 | 44.1916 | 826.849 | 226.3 | 512.4 | 95.836 | 48.51 | 72.57 | 1319 |
| 80.000 | 25.674 | .03895 | .43918 | 38.5320 | 708.410 | 936.8 | 1228.9 | 105.393 | 45.28 | 70.71 | 1248 |
| 90.000 | 25.125 | .03980 | .39891 | 33.7826 | 609.939 | 1632.9 | 1931.4 | 113.661 | 43.12 | 69.80 | 1179 |
| 100.000 | 24.566 | .04071 | .36719 | 29.7268 | 526.667 | 2321.9 | 2627.2 | 120.996 | 41.71 | 69.51 | 1111 |
| 110.000 | 23.996 | .04167 | .34174 | 26.2168 | 455.258 | 3009.5 | 3322.0 | 127.625 | 40.81 | 69.65 | 1046 |
| 120.000 | 23.414 | .04271 | .32105 | 23.1466 | 393.287 | 3699.9 | 4020.2 | 133.702 | 40.26 | 70.08 | 981 |
| 130.000 | 22.818 | .04382 | .30408 | 20.4375 | 338.951 | 4395.8 | 4724.5 | 139.336 | 39.98 | 70.74 | 919 |
| 140.000 | 22.207 | .04503 | .29014 | 18.0293 | 290.885 | 5099.3 | 5437.0 | 144.609 | 39.91 | 71.63 | 857 |
| 150.000 | 21.578 | .04634 | .27869 | 15.8744 | 248.051 | 5811.7 | 6159.3 | 149.588 | 40.02 | 72.75 | 796 |
| 160.000 | 20.926 | .04779 | .26941 | 13.9346 | 209.651 | 6535.1 | 6893.5 | 154.327 | 40.31 | 74.15 | 736 |
| 170.000 | 20.246 | .04939 | .26208 | 12.1782 | 175.075 | 7272.2 | 7642.6 | 158.872 | 40.74 | 75.88 | 677 |
| 180.000 | 19.532 | .05120 | .25657 | 10.5787 | 143.857 | 8026.6 | 8410.6 | 163.266 | 41.26 | 77.96 | 618 |
| 190.000 | 18.771 | .05327 | .25292 | 9.1129 | 115.646 | 8802.8 | 9202.3 | 167.547 | 41.75 | 80.47 | 560 |
| 200.000 | 17.949 | .05571 | .25127 | 7.7601 | 90.187 | 9605.0 | 10022.9 | 171.750 | 42.09 | 83.54 | 502 |
| 210.000 | 17.040 | .05869 | .25208 | 6.5007 | 67.314 | 10438.0 | 10878.2 | 175.917 | 42.12 | 87.53 | 443 |
| 220.000 | 15.998 | .06251 | .25629 | 5.3137 | 46.962 | 11310.6 | 11779.4 | 180.116 | 41.86 | 93.54 | 384 |
| 230.000 | 14.735 | .06787 | .26617 | 4.1739 | 29.235 | 12259.8 | 12768.8 | 184.505 | 42.82 | 105.95 | 319 |
| 240.000 | 13.032 | .07673 | .28841 | 3.0439 | 14.704 | 13342.6 | 13918.1 | 189.390 | 47.51 | 136.55 | 243 |
| 250.000 | 10.365 | .09648 | .34812 | 1.9114 | 5.942 | 14832.4 | 15556.0 | 196.068 | 48.98 | 192.08 | 181 |
| 260.000 | 7.565 | .13220 | .45864 | 1.1634 | 5.437 | 16398.3 | 17389.8 | 203.266 | 48.98 | 162.10 | 159 |
| 270.000 | 5.966 | .16761 | .55998 | .8319 | 7.189 | 17537.9 | 18795.0 | 208.574 | 48.31 | 121.34 | 159 |
| 280.000 | 5.068 | .19730 | .63562 | .6644 | 9.501 | 18402.4 | 19882.1 | 212.531 | 48.09 | 98.73 | 165 |
| 290.000 | 4.490 | .22269 | .69269 | .5628 | 11.722 | 19135.1 | 20805.3 | 215.771 | 48.23 | 87.09 | 172 |
| 300.000 | 4.077 | .24529 | .73754 | .4933 | 13.787 | 19800.5 | 21640.2 | 218.602 | 48.60 | 80.46 | 179 |
| 310.000 | 3.760 | .26597 | .77391 | .4421 | 15.712 | 20428.1 | 22422.9 | 221.169 | 49.10 | 76.38 | 185 |
| 320.000 | 3.506 | .28524 | .80405 | .4024 | 17.516 | 21033.3 | 23172.6 | 223.549 | 49.67 | 73.74 | 191 |
| 330.000 | 3.296 | .30344 | .82944 | .3706 | 19.222 | 21624.9 | 23900.7 | 225.790 | 50.29 | 72.00 | 196 |
| 340.000 | 3.117 | .32080 | .85111 | .3443 | 20.843 | 22208.5 | 24614.5 | 227.921 | 50.94 | 70.84 | 202 |
| 350.000 | 2.963 | .33748 | .86978 | .3221 | 22.393 | 22787.6 | 25318.8 | 229.962 | 51.59 | 70.07 | 206 |
| 360.000 | 2.828 | .35361 | .88602 | .3032 | 23.881 | 23364.8 | 26016.8 | 231.929 | 52.25 | 69.58 | 211 |
| 370.000 | 2.708 | .36926 | .90023 | .2867 | 25.316 | 23941.5 | 26711.0 | 233.831 | 52.90 | 69.28 | 216 |
| 380.000 | 2.601 | .38451 | .91274 | .2722 | 26.705 | 24519.1 | 27402.9 | 235.676 | 53.55 | 69.13 | 220 |
| 390.000 | 2.504 | .39941 | .92381 | .2594 | 28.053 | 25098.4 | 28094.0 | 237.471 | 54.17 | 69.09 | 224 |
| 400.000 | 2.415 | .41402 | .93366 | .2479 | 29.364 | 25679.9 | 28785.1 | 239.221 | 54.79 | 69.13 | 228 |
| 410.000 | 2.334 | .42836 | .94244 | .2375 | 30.642 | 26264.1 | 29476.9 | 240.929 | 55.39 | 69.23 | 232 |
| 420.000 | 2.260 | .44247 | .95030 | .2281 | 31.892 | 26851.4 | 30169.9 | 242.599 | 55.97 | 69.38 | 235 |
| 430.000 | 2.191 | .45637 | .95736 | .2195 | 33.115 | 27441.8 | 30864.6 | 244.234 | 56.53 | 69.56 | 239 |
| 440.000 | 2.127 | .47009 | .96373 | .2116 | 34.314 | 28035.6 | 31561.2 | 245.835 | 57.08 | 69.77 | 243 |
| 450.000 | 2.068 | .48364 | .96947 | .2044 | 35.491 | 28632.8 | 32260.1 | 247.405 | 57.60 | 70.00 | 246 |
| 460.000 | 2.012 | .49704 | .97467 | .1977 | 36.648 | 29233.4 | 32961.2 | 248.947 | 58.11 | 70.24 | 249 |
| 470.000 | 1.960 | .51030 | .97938 | .1915 | 37.788 | 29837.5 | 33664.8 | 250.460 | 58.61 | 70.48 | 252 |
| 480.000 | 1.910 | .52344 | .98366 | .1857 | 38.910 | 30445.1 | 34370.9 | 251.946 | 59.08 | 70.74 | 256 |
| 490.000 | 1.864 | .53646 | .98756 | .1803 | 40.017 | 31056.2 | 35079.6 | 253.408 | 59.54 | 71.00 | 259 |
| 500.000 | 1.820 | .54937 | .99111 | .1753 | 41.110 | 31670.5 | 35790.8 | 254.845 | 59.98 | 71.26 | 262 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 80 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 67.838 | 26.334 | .03797 | .53858 | 45.6366 | 858.574 | 67.6 | 371.4 | 93.513 | 49.39 | 73.12 | 1337 |
| 70.000 | 26.219 | .03814 | .52424 | 44.2636 | 829.673 | 223.7 | 528.8 | 95.797 | 48.51 | 72.56 | 1322 |
| 80.000 | 25.681 | .03894 | .46833 | 38.6008 | 711.071 | 933.6 | 1245.1 | 105.352 | 45.27 | 70.69 | 1250 |
| 90.000 | 25.133 | .03979 | .42536 | 33.8493 | 612.480 | 1629.1 | 1947.4 | 113.617 | 43.12 | 69.77 | 1181 |
| 100.000 | 24.576 | .04069 | .39151 | 29.7924 | 529.122 | 2317.4 | 2642.9 | 120.949 | 41.71 | 69.48 | 1114 |
| 110.000 | 24.007 | .04165 | .36435 | 26.2818 | 457.652 | 3004.1 | 3337.4 | 127.575 | 40.81 | 69.61 | 1048 |
| 120.000 | 23.427 | .04269 | .34226 | 23.2116 | 395.642 | 3693.6 | 4035.1 | 133.648 | 40.26 | 70.03 | 984 |
| 130.000 | 22.833 | .04380 | .32415 | 20.5030 | 341.285 | 4388.6 | 4738.9 | 139.278 | 39.97 | 70.68 | 921 |
| 140.000 | 22.224 | .04500 | .30924 | 18.0958 | 293.216 | 5090.7 | 5450.7 | 144.547 | 39.90 | 71.55 | 860 |
| 150.000 | 21.598 | .04630 | .29700 | 15.9426 | 250.393 | 5801.7 | 6172.1 | 149.520 | 40.02 | 72.66 | 800 |
| 160.000 | 20.950 | .04773 | .28705 | 14.0051 | 212.018 | 6523.4 | 6905.3 | 154.251 | 40.30 | 74.03 | 740 |
| 170.000 | 20.275 | .04932 | .27916 | 12.2519 | 177.481 | 7258.3 | 7652.9 | 158.788 | 40.73 | 75.71 | 681 |
| 180.000 | 19.566 | .05111 | .27320 | 10.6565 | 146.316 | 8010.1 | 8419.0 | 163.170 | 41.24 | 77.73 | 623 |
| 190.000 | 18.814 | .05315 | .26916 | 9.1963 | 118.173 | 8782.6 | 9207.9 | 167.436 | 41.72 | 80.14 | 565 |
| 200.000 | 18.004 | .05554 | .26721 | 7.8512 | 92.798 | 9579.9 | 10024.2 | 171.618 | 42.05 | 83.04 | 508 |
| 210.000 | 17.113 | .05844 | .26774 | 6.6024 | 70.026 | 10405.6 | 10873.1 | 175.754 | 42.06 | 86.70 | 450 |
| 220.000 | 16.101 | .06211 | .27162 | 5.4313 | 49.790 | 11266.3 | 11763.2 | 179.900 | 41.75 | 92.03 | 393 |
| 230.000 | 14.897 | .06713 | .28081 | 4.3170 | 32.183 | 12193.1 | 12730.1 | 184.190 | 42.64 | 102.65 | 330 |
| 240.000 | 13.342 | .07495 | .30050 | 3.2336 | 17.672 | 13222.3 | 13821.9 | 188.832 | 47.15 | 126.93 | 258 |
| 250.000 | 11.088 | .09019 | .34710 | 2.1727 | 8.039 | 14560.5 | 15282.0 | 194.786 | 48.41 | 167.81 | 198 |
| 260.000 | 8.436 | .11853 | .43865 | 1.3692 | 6.072 | 16056.2 | 17004.5 | 201.543 | 48.98 | 161.77 | 168 |
| 270.000 | 6.666 | .15001 | .53456 | .9683 | 7.156 | 17247.8 | 18447.9 | 206.995 | 48.60 | 128.21 | 163 |
| 280.000 | 5.605 | .17841 | .61307 | .7592 | 9.168 | 18173.2 | 19600.5 | 211.190 | 48.39 | 104.42 | 166 |
| 290.000 | 4.925 | .20305 | .67369 | .6347 | 11.320 | 18946.9 | 20571.3 | 214.598 | 48.50 | 91.04 | 173 |
| 300.000 | 4.445 | .22497 | .72153 | .5513 | 13.381 | 19640.1 | 21439.8 | 217.542 | 48.82 | 83.31 | 179 |
| 310.000 | 4.082 | .24496 | .76032 | .4908 | 15.323 | 20287.6 | 22247.3 | 220.191 | 49.29 | 78.54 | 185 |
| 320.000 | 3.794 | .26355 | .79243 | .4446 | 17.154 | 20907.8 | 23016.2 | 222.632 | 49.84 | 75.45 | 191 |
| 330.000 | 3.558 | .28106 | .81947 | .4077 | 18.887 | 21511.2 | 23759.7 | 224.920 | 50.44 | 73.39 | 196 |
| 340.000 | 3.359 | .29772 | .84252 | .3776 | 20.537 | 22104.4 | 24486.1 | 227.088 | 51.07 | 71.99 | 201 |
| 350.000 | 3.188 | .31370 | .86237 | .3524 | 22.116 | 22691.4 | 25201.0 | 229.161 | 51.71 | 71.05 | 206 |
| 360.000 | 3.038 | .32911 | .87961 | .3309 | 23.632 | 23275.2 | 25908.1 | 231.153 | 52.36 | 70.42 | 211 |
| 370.000 | 2.907 | .34405 | .89470 | .3123 | 25.093 | 23857.8 | 26610.2 | 233.077 | 53.00 | 70.02 | 216 |
| 380.000 | 2.789 | .35859 | .90797 | .2960 | 26.507 | 24440.4 | 27309.1 | 234.941 | 53.63 | 69.79 | 220 |
| 390.000 | 2.682 | .37279 | .91972 | .2816 | 27.878 | 25024.0 | 28006.3 | 236.752 | 54.26 | 69.68 | 224 |
| 400.000 | 2.586 | .38669 | .93015 | .2688 | 29.212 | 25609.5 | 28703.0 | 238.515 | 54.86 | 69.66 | 228 |
| 410.000 | 2.498 | .40032 | .93946 | .2573 | 30.512 | 26197.2 | 29399.7 | 240.236 | 55.46 | 69.71 | 232 |
| 420.000 | 2.417 | .41372 | .94779 | .2468 | 31.781 | 26787.6 | 30097.3 | 241.917 | 56.03 | 69.82 | 236 |
| 430.000 | 2.342 | .42691 | .95527 | .2373 | 33.024 | 27380.9 | 30796.2 | 243.561 | 56.59 | 69.96 | 239 |
| 440.000 | 2.273 | .43992 | .96201 | .2286 | 34.241 | 27977.3 | 31496.7 | 245.172 | 57.14 | 70.14 | 243 |
| 450.000 | 2.209 | .45277 | .96809 | .2207 | 35.436 | 28576.9 | 32199.0 | 246.750 | 57.66 | 70.33 | 246 |
| 460.000 | 2.148 | .46546 | .97359 | .2133 | 36.610 | 29179.7 | 32903.4 | 248.298 | 58.17 | 70.55 | 250 |
| 470.000 | 2.092 | .47801 | .97858 | .2065 | 37.765 | 29785.9 | 33610.0 | 249.818 | 58.66 | 70.78 | 253 |
| 480.000 | 2.039 | .49044 | .98311 | .2001 | 38.903 | 30395.4 | 34319.0 | 251.310 | 59.13 | 71.01 | 256 |
| 490.000 | 1.989 | .50276 | .98723 | .1942 | 40.025 | 31008.2 | 35030.3 | 252.777 | 59.58 | 71.25 | 259 |
| 500.000 | 1.942 | .51497 | .99099 | .1887 | 41.132 | 31624.3 | 35744.1 | 254.219 | 60.02 | 71.50 | 262 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 90 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 68.023 | 26.336 | .03797 | .60422 | 45.6625 | 861.788 | 75.9 | 417.6 | 93.634 | 49.31 | 73.04 | 1340 |
| 70.000 | 26.231 | .03812 | .58951 | 44.4071 | 835.322 | 218.4 | 561.5 | 95.720 | 48.51 | 72.52 | 1326 |
| 80.000 | 25.695 | .03892 | .52658 | 38.7381 | 716.391 | 927.2 | 1277.4 | 105.269 | 45.27 | 70.65 | 1254 |
| 90.000 | 25.150 | .03976 | .47822 | 33.9824 | 617.560 | 1621.5 | 1979.3 | 113.530 | 43.12 | 69.72 | 1185 |
| 100.000 | 24.595 | .04066 | .44012 | 29.9230 | 534.026 | 2308.3 | 2674.3 | 120.856 | 41.70 | 69.42 | 1118 |
| 110.000 | 24.029 | .04162 | .40953 | 26.4112 | 462.433 | 2993.5 | 3368.1 | 127.476 | 40.80 | 69.54 | 1053 |
| 120.000 | 23.452 | .04264 | .38463 | 23.3408 | 400.342 | 3681.2 | 4065.0 | 133.542 | 40.25 | 69.94 | 989 |
| 130.000 | 22.862 | .04374 | .36420 | 20.6332 | 345.941 | 4374.1 | 4767.8 | 139.163 | 39.96 | 70.57 | 927 |
| 140.000 | 22.258 | .04493 | .34737 | 18.2280 | 297.860 | 5073.9 | 5478.3 | 144.422 | 39.89 | 71.41 | 866 |
| 150.000 | 21.637 | .04622 | .33351 | 16.0779 | 255.055 | 5782.1 | 6198.1 | 149.384 | 40.00 | 72.47 | 806 |
| 160.000 | 20.996 | .04763 | .32221 | 14.1447 | 216.725 | 6500.4 | 6929.1 | 154.102 | 40.28 | 73.79 | 747 |
| 170.000 | 20.330 | .04919 | .31319 | 12.3973 | 182.259 | 7231.2 | 7673.9 | 158.621 | 40.70 | 75.38 | 689 |
| 180.000 | 19.633 | .05093 | .30629 | 10.8096 | 151.191 | 7977.8 | 8436.2 | 162.983 | 41.20 | 77.29 | 632 |
| 190.000 | 18.897 | .05292 | .30148 | 9.3596 | 123.169 | 8743.6 | 9219.8 | 167.219 | 41.67 | 79.51 | 575 |
| 200.000 | 18.109 | .05522 | .29887 | 8.0281 | 97.942 | 9531.6 | 10028.6 | 171.362 | 41.97 | 82.11 | 519 |
| 210.000 | 17.250 | .05797 | .29881 | 6.7980 | 75.342 | 10344.0 | 10865.7 | 175.441 | 41.95 | 85.23 | 464 |
| 220.000 | 16.292 | .06138 | .30200 | 5.6536 | 55.298 | 11184.0 | 11736.4 | 179.498 | 41.58 | 89.49 | 409 |
| 230.000 | 15.183 | .06586 | .30996 | 4.5795 | 37.869 | 12074.5 | 12667.3 | 183.628 | 42.35 | 97.60 | 350 |
| 240.000 | 13.831 | .07230 | .32608 | 3.5613 | 23.376 | 13028.6 | 13679.3 | 187.931 | 46.63 | 114.69 | 284 |
| 250.000 | 12.068 | .08286 | .35877 | 2.5969 | 12.802 | 14188.1 | 14933.9 | 193.049 | 47.57 | 137.99 | 228 |
| 260.000 | 9.877 | .10125 | .42153 | 1.7748 | 8.122 | 15504.2 | 16415.4 | 198.858 | 48.59 | 151.96 | 189 |
| 270.000 | 7.993 | .12511 | .50158 | 1.2611 | 8.104 | 16718.0 | 17844.0 | 204.252 | 48.82 | 131.76 | 175 |
| 280.000 | 6.703 | .14918 | .57670 | .9712 | 9.213 | 17719.6 | 19062.2 | 208.685 | 48.81 | 112.60 | 173 |
| 290.000 | 5.827 | .17161 | .64055 | .7949 | 10.957 | 18566.9 | 20111.4 | 212.369 | 48.93 | 98.18 | 175 |
| 300.000 | 5.209 | .19198 | .69268 | .6791 | 12.878 | 19315.1 | 21042.9 | 215.527 | 49.22 | 88.81 | 180 |
| 310.000 | 4.748 | .21062 | .73544 | .5970 | 14.782 | 20003.2 | 21898.7 | 218.334 | 49.64 | 82.80 | 186 |
| 320.000 | 4.387 | .22792 | .77099 | .5355 | 16.618 | 20654.3 | 22705.6 | 220.896 | 50.15 | 78.83 | 191 |
| 330.000 | 4.095 | .24418 | .80095 | .4874 | 18.377 | 21282.0 | 23479.7 | 223.278 | 50.71 | 76.15 | 197 |
| 340.000 | 3.852 | .25961 | .82651 | .4485 | 20.062 | 21894.8 | 24231.3 | 225.522 | 51.32 | 74.29 | 202 |
| 350.000 | 3.645 | .27436 | .84853 | .4164 | 21.679 | 22498.1 | 24967.4 | 227.656 | 51.93 | 73.01 | 207 |
| 360.000 | 3.465 | .28856 | .86765 | .3893 | 23.236 | 23095.7 | 25692.7 | 229.699 | 52.56 | 72.11 | 211 |
| 370.000 | 3.308 | .30229 | .88436 | .3660 | 24.738 | 23689.9 | 26410.6 | 231.666 | 53.18 | 71.50 | 216 |
| 380.000 | 3.168 | .31562 | .89907 | .3458 | 26.192 | 24282.7 | 27123.4 | 233.567 | 53.80 | 71.09 | 220 |
| 390.000 | 3.043 | .32862 | .91207 | .3281 | 27.603 | 24875.4 | 27832.9 | 235.410 | 54.41 | 70.84 | 224 |
| 400.000 | 2.930 | .34131 | .92362 | .3124 | 28.975 | 25468.7 | 28540.5 | 237.201 | 55.01 | 70.70 | 229 |
| 410.000 | 2.827 | .35374 | .93392 | .2983 | 30.312 | 26063.6 | 29247.3 | 238.946 | 55.60 | 70.66 | 232 |
| 420.000 | 2.733 | .36595 | .94314 | .2856 | 31.617 | 26660.4 | 29953.9 | 240.649 | 56.16 | 70.68 | 236 |
| 430.000 | 2.646 | .37795 | .95142 | .2742 | 32.894 | 27259.5 | 30661.0 | 242.313 | 56.71 | 70.75 | 240 |
| 440.000 | 2.566 | .38977 | .95887 | .2637 | 34.144 | 27861.1 | 31369.0 | 243.941 | 57.25 | 70.86 | 243 |
| 450.000 | 2.491 | .40142 | .96559 | .2541 | 35.370 | 28465.6 | 32078.4 | 245.535 | 57.77 | 71.01 | 247 |
| 460.000 | 2.422 | .41293 | .97167 | .2453 | 36.574 | 29072.9 | 32789.3 | 247.097 | 58.27 | 71.17 | 250 |
| 470.000 | 2.357 | .42430 | .97719 | .2372 | 37.759 | 29683.2 | 33501.9 | 248.630 | 58.75 | 71.36 | 254 |
| 480.000 | 2.296 | .43554 | .98219 | .2296 | 38.924 | 30296.6 | 34216.5 | 250.134 | 59.22 | 71.55 | 257 |
| 490.000 | 2.239 | .44668 | .98675 | .2226 | 40.072 | 30912.9 | 34933.0 | 251.612 | 59.67 | 71.76 | 260 |
| 500.000 | 2.185 | .45771 | .99090 | .2160 | 41.205 | 31532.3 | 35651.7 | 253.064 | 60.11 | 71.97 | 263 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 100 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 68.206 | 26.338 | .03797 | .66950 | 45.6883 | 865.003 | 84.1 | 463.8 | 93.755 | 49.23 | 72.96 | 1343 |
| 70.000 | 26.243 | .03810 | .65471 | 44.5502 | 840.971 | 213.2 | 594.2 | 95.643 | 48.51 | 72.49 | 1330 |
| 80.000 | 25.709 | .03890 | .58477 | 38.8748 | 721.710 | 920.8 | 1309.8 | 105.188 | 45.27 | 70.62 | 1259 |
| 90.000 | 25.166 | .03974 | .53102 | 34.1150 | 622.635 | 1613.9 | 2011.3 | 113.443 | 43.11 | 69.68 | 1190 |
| 100.000 | 24.613 | .04063 | .48865 | 30.0529 | 538.925 | 2299.4 | 2705.7 | 120.764 | 41.70 | 69.36 | 1123 |
| 110.000 | 24.050 | .04158 | .45462 | 26.5398 | 467.205 | 2983.1 | 3398.9 | 127.377 | 40.79 | 69.47 | 1058 |
| 120.000 | 23.477 | .04260 | .42692 | 23.4693 | 405.030 | 3669.0 | 4095.0 | 133.436 | 40.24 | 69.85 | 995 |
| 130.000 | 22.891 | .04369 | .40416 | 20.7624 | 350.582 | 4359.9 | 4796.7 | 139.050 | 39.95 | 70.46 | 933 |
| 140.000 | 22.292 | .04486 | .38538 | 18.3589 | 302.484 | 5057.4 | 5506.0 | 144.300 | 39.87 | 71.27 | 872 |
| 150.000 | 21.676 | .04613 | .36990 | 16.2116 | 259.691 | 5762.9 | 6224.2 | 149.250 | 39.98 | 72.29 | 813 |
| 160.000 | 21.042 | .04752 | .35724 | 14.2823 | 221.399 | 6477.9 | 6953.1 | 153.955 | 40.26 | 73.56 | 754 |
| 170.000 | 20.385 | .04906 | .34707 | 12.5402 | 186.995 | 7204.8 | 7695.4 | 158.458 | 40.67 | 75.08 | 697 |
| 180.000 | 19.699 | .05077 | .33920 | 10.9594 | 156.010 | 7946.4 | 8454.1 | 162.799 | 41.16 | 76.87 | 640 |
| 190.000 | 18.977 | .05270 | .33357 | 9.5185 | 128.095 | 8705.8 | 9232.8 | 167.010 | 41.62 | 78.94 | 584 |
| 200.000 | 18.208 | .05492 | .33027 | 8.1989 | 102.993 | 9485.4 | 10034.6 | 171.117 | 41.90 | 81.28 | 530 |
| 210.000 | 17.378 | .05754 | .32956 | 6.9846 | 80.534 | 10286.1 | 10861.6 | 175.146 | 41.85 | 83.97 | 477 |
| 220.000 | 16.464 | .06074 | .33204 | 5.8616 | 60.637 | 11108.6 | 11716.0 | 179.128 | 41.43 | 87.42 | 424 |
| 230.000 | 15.430 | .06481 | .33890 | 4.8178 | 43.331 | 11970.8 | 12618.9 | 183.133 | 42.12 | 93.86 | 368 |
| 240.000 | 14.216 | .07035 | .35252 | 3.8434 | 28.835 | 12873.7 | 13577.1 | 187.208 | 46.26 | 107.10 | 306 |
| 250.000 | 12.729 | .07856 | .37795 | 2.9381 | 17.752 | 13932.1 | 14717.7 | 191.862 | 47.01 | 122.05 | 254 |
| 260.000 | 10.924 | .09154 | .42344 | 2.1416 | 11.290 | 15104.6 | 16020.0 | 196.968 | 48.07 | 136.57 | 212 |
| 270.000 | 9.128 | .10956 | .48802 | 1.5593 | 9.660 | 16277.4 | 17373.0 | 202.075 | 48.71 | 130.28 | 190 |
| 280.000 | 7.741 | .12918 | .55488 | 1.2000 | 10.198 | 17305.7 | 18597.5 | 206.531 | 48.98 | 114.96 | 183 |
| 290.000 | 6.731 | .14857 | .61617 | .9729 | 11.302 | 18198.5 | 19684.2 | 210.345 | 49.21 | 102.82 | 182 |
| 300.000 | 5.988 | .16699 | .66946 | .8211 | 12.867 | 18992.8 | 20662.7 | 213.663 | 49.52 | 93.35 | 184 |
| 310.000 | 5.430 | .18416 | .71451 | .7143 | 14.608 | 19719.0 | 21560.6 | 216.608 | 49.93 | 86.65 | 188 |
| 320.000 | 4.995 | .20021 | .75251 | .6351 | 16.372 | 20400.4 | 22402.5 | 219.281 | 50.42 | 82.02 | 193 |
| 330.000 | 4.644 | .21532 | .78477 | .5739 | 18.105 | 21052.4 | 23205.7 | 221.753 | 50.96 | 78.80 | 198 |
| 340.000 | 4.354 | .22966 | .81240 | .5251 | 19.788 | 21685.0 | 23981.6 | 224.069 | 51.54 | 76.53 | 203 |
| 350.000 | 4.109 | .24336 | .83625 | .4851 | 21.417 | 22304.8 | 24738.3 | 226.263 | 52.14 | 74.91 | 208 |
| 360.000 | 3.898 | .25652 | .85700 | .4516 | 22.993 | 22916.2 | 25481.4 | 228.356 | 52.75 | 73.76 | 212 |
| 370.000 | 3.714 | .26923 | .87516 | .4231 | 24.519 | 23522.3 | 26214.7 | 230.366 | 53.36 | 72.94 | 217 |
| 380.000 | 3.552 | .28156 | .89114 | .3986 | 25.999 | 24125.5 | 26941.0 | 232.303 | 53.96 | 72.37 | 221 |
| 390.000 | 3.407 | .29355 | .90528 | .3771 | 27.438 | 24727.1 | 27662.7 | 234.177 | 54.56 | 71.98 | 225 |
| 400.000 | 3.276 | .30526 | .91784 | .3582 | 28.838 | 25328.5 | 28381.1 | 235.996 | 55.15 | 71.73 | 229 |
| 410.000 | 3.157 | .31671 | .92905 | .3413 | 30.203 | 25930.5 | 29097.6 | 237.765 | 55.73 | 71.59 | 233 |
| 420.000 | 3.049 | .32794 | .93908 | .3262 | 31.536 | 26533.8 | 29813.1 | 239.490 | 56.29 | 71.53 | 237 |
| 430.000 | 2.950 | .33896 | .94809 | .3126 | 32.840 | 27138.7 | 30528.3 | 241.173 | 56.83 | 71.53 | 241 |
| 440.000 | 2.859 | .34981 | .95619 | .3002 | 34.117 | 27745.7 | 31243.8 | 242.817 | 57.36 | 71.58 | 244 |
| 450.000 | 2.774 | .36050 | .96351 | .2888 | 35.369 | 28355.0 | 31960.0 | 244.427 | 57.87 | 71.67 | 248 |
| 460.000 | 2.695 | .37104 | .97013 | .2785 | 36.599 | 28966.8 | 32677.3 | 246.003 | 58.37 | 71.79 | 251 |
| 470.000 | 2.622 | .38145 | .97613 | .2689 | 37.808 | 29581.3 | 33395.8 | 247.549 | 58.85 | 71.93 | 255 |
| 480.000 | 2.553 | .39175 | .98158 | .2601 | 38.997 | 30198.4 | 34115.9 | 249.065 | 59.31 | 72.09 | 258 |
| 490.000 | 2.488 | .40193 | .98654 | .2519 | 40.169 | 30818.3 | 34837.6 | 250.553 | 59.76 | 72.26 | 261 |
| 500.000 | 2.427 | .41201 | .99106 | .2442 | 41.323 | 31441.0 | 35561.1 | 252.014 | 60.19 | 72.44 | 264 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 120 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 68.572 | 26.342 | .03796 | .79900 | 45.7399 | 871.438 | 100.5 | 556.0 | 93.993 | 49.08 | 72.80 | 1349 |
| 70.000 | 26.267 | .03807 | .78494 | 44.8352 | 852.271 | 202.8 | 659.7 | 95.490 | 48.50 | 72.43 | 1338 |
| 80.000 | 25.737 | .03886 | .70098 | 39.1468 | 732.341 | 908.3 | 1374.6 | 105.026 | 45.27 | 70.54 | 1267 |
| 90.000 | 25.198 | .03969 | .63642 | 34.3784 | 632.775 | 1599.0 | 2075.2 | 113.271 | 43.11 | 69.58 | 1199 |
| 100.000 | 24.650 | .04057 | .58550 | 30.3110 | 548.703 | 2281.8 | 2768.6 | 120.581 | 41.69 | 69.25 | 1132 |
| 110.000 | 24.093 | .04151 | .54459 | 26.7949 | 476.723 | 2962.4 | 3460.5 | 127.182 | 40.78 | 69.32 | 1068 |
| 120.000 | 23.526 | .04251 | .51124 | 23.7235 | 414.371 | 3644.9 | 4155.0 | 133.227 | 40.23 | 69.68 | 1005 |
| 130.000 | 22.947 | .04358 | .48380 | 21.0177 | 359.816 | 4332.0 | 4854.9 | 138.826 | 39.94 | 70.24 | 944 |
| 140.000 | 22.357 | .04473 | .46111 | 18.6172 | 311.674 | 5025.0 | 5561.8 | 144.058 | 39.85 | 71.00 | 884 |
| 150.000 | 21.752 | .04597 | .44234 | 16.4746 | 268.889 | 5725.3 | 6277.0 | 148.988 | 39.96 | 71.96 | 825 |
| 160.000 | 21.130 | .04733 | .42689 | 14.5521 | 230.653 | 6434.2 | 7002.1 | 153.668 | 40.22 | 73.12 | 768 |
| 170.000 | 20.489 | .04881 | .41436 | 12.8191 | 196.347 | 7153.7 | 7739.4 | 158.142 | 40.62 | 74.52 | 712 |
| 180.000 | 19.823 | .05045 | .40449 | 11.2503 | 165.500 | 7886.2 | 8491.5 | 162.446 | 41.10 | 76.13 | 657 |
| 190.000 | 19.127 | .05228 | .39714 | 9.8246 | 137.755 | 8634.2 | 9261.6 | 166.609 | 41.53 | 77.92 | 603 |
| 200.000 | 18.394 | .05437 | .39232 | 8.5245 | 112.850 | 9399.0 | 10051.4 | 170.654 | 41.78 | 79.85 | 551 |
| 210.000 | 17.612 | .05678 | .39022 | 7.3352 | 90.604 | 10179.6 | 10860.9 | 174.599 | 41.68 | 81.89 | 500 |
| 220.000 | 16.769 | .05963 | .39122 | 6.2447 | 70.911 | 10973.9 | 11689.5 | 178.460 | 41.20 | 84.22 | 451 |
| 230.000 | 15.843 | .06312 | .39607 | 5.2432 | 53.750 | 11793.9 | 12551.4 | 182.284 | 41.77 | 88.64 | 400 |
| 240.000 | 14.807 | .06754 | .40613 | 4.3241 | 39.209 | 12629.5 | 13439.9 | 186.063 | 45.75 | 97.95 | 343 |
| 250.000 | 13.625 | .07339 | .42370 | 3.4864 | 27.543 | 13575.3 | 14456.0 | 190.209 | 46.30 | 105.73 | 297 |
| 260.000 | 12.275 | .08147 | .45221 | 2.7415 | 19.233 | 14581.4 | 15558.9 | 194.534 | 47.26 | 114.69 | 256 |
| 270.000 | 10.822 | .09240 | .49393 | 2.1233 | 14.716 | 15625.0 | 16733.9 | 198.968 | 48.18 | 118.81 | 226 |
| 280.000 | 9.466 | .10564 | .54455 | 1.6659 | 13.392 | 16634.6 | 17902.4 | 203.219 | 48.87 | 113.63 | 209 |
| 290.000 | 8.352 | .11973 | .59589 | 1.3516 | 13.681 | 17558.2 | 18995.0 | 207.053 | 49.37 | 104.89 | 202 |
| 300.000 | 7.472 | .13384 | .64389 | 1.1331 | 14.475 | 18399.2 | 20005.3 | 210.479 | 49.83 | 97.50 | 199 |
| 310.000 | 6.770 | .14771 | .68770 | .9748 | 15.551 | 19177.5 | 20950.0 | 213.577 | 50.30 | 91.64 | 199 |
| 320.000 | 6.206 | .16114 | .72677 | .8565 | 16.896 | 19908.1 | 21841.7 | 216.409 | 50.81 | 86.89 | 201 |
| 330.000 | 5.746 | .17403 | .76111 | .7656 | 18.384 | 20603.0 | 22691.4 | 219.023 | 51.34 | 83.21 | 204 |
| 340.000 | 5.366 | .18637 | .79114 | .6937 | 19.928 | 21272.4 | 23508.9 | 221.464 | 51.90 | 80.42 | 208 |
| 350.000 | 5.045 | .19823 | .81742 | .6355 | 21.480 | 21923.4 | 24302.2 | 223.764 | 52.48 | 78.34 | 212 |
| 360.000 | 4.770 | .20965 | .84048 | .5874 | 23.019 | 22561.7 | 25077.4 | 225.948 | 53.07 | 76.79 | 216 |
| 370.000 | 4.532 | .22068 | .86080 | .5469 | 24.533 | 23191.1 | 25839.2 | 228.035 | 53.66 | 75.63 | 220 |
| 380.000 | 4.322 | .23137 | .87876 | .5123 | 26.017 | 23814.5 | 26591.0 | 230.040 | 54.25 | 74.77 | 224 |
| 390.000 | 4.136 | .24177 | .89471 | .4823 | 27.471 | 24434.1 | 27335.3 | 231.974 | 54.83 | 74.13 | 228 |
| 400.000 | 3.970 | .25191 | .90892 | .4561 | 28.894 | 25051.3 | 28074.2 | 233.844 | 55.40 | 73.68 | 232 |
| 410.000 | 3.820 | .26181 | .92162 | .4329 | 30.286 | 25667.5 | 28809.3 | 235.659 | 55.96 | 73.36 | 236 |
| 420.000 | 3.683 | .27151 | .93301 | .4123 | 31.650 | 26283.5 | 29541.7 | 237.424 | 56.51 | 73.14 | 240 |
| 430.000 | 3.558 | .28103 | .94325 | .3938 | 32.987 | 26900.1 | 30272.4 | 239.144 | 57.04 | 73.01 | 243 |
| 440.000 | 3.444 | .29038 | .95247 | .3771 | 34.299 | 27517.6 | 31002.1 | 240.822 | 57.56 | 72.95 | 247 |
| 450.000 | 3.338 | .29957 | .96081 | .3620 | 35.586 | 28136.6 | 31731.5 | 242.460 | 58.06 | 72.93 | 250 |
| 460.000 | 3.240 | .30864 | .96836 | .3481 | 36.851 | 28757.3 | 32460.9 | 244.064 | 58.55 | 72.96 | 254 |
| 470.000 | 3.149 | .31758 | .97521 | .3355 | 38.095 | 29379.9 | 33190.8 | 245.633 | 59.02 | 73.02 | 257 |
| 480.000 | 3.064 | .32640 | .98143 | .3238 | 39.320 | 30004.7 | 33921.5 | 247.172 | 59.48 | 73.11 | 260 |
| 490.000 | 2.984 | .33513 | .98709 | .3130 | 40.526 | 30631.6 | 34653.2 | 248.680 | 59.92 | 73.22 | 264 |
| 500.000 | 2.909 | .34375 | .99225 | .3030 | 41.715 | 31260.9 | 35386.0 | 250.161 | 60.34 | 73.35 | 267 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 140 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 68.937 | 26.346 | .03796 | .92711 | 45.7915 | 877.879 | 116.7 | 648.1 | 94.228 | 48.93 | 72.65 | 1354 |
| 70.000 | 26.290 | .03804 | .91495 | 45.1184 | 863.573 | 192.6 | 725.2 | 95.338 | 48.50 | 72.37 | 1347 |
| 80.000 | 25.764 | .03881 | .81695 | 39.4170 | 742.967 | 896.0 | 1439.4 | 104.865 | 45.26 | 70.47 | 1276 |
| 90.000 | 25.229 | .03964 | .74156 | 34.6397 | 642.900 | 1584.3 | 2139.2 | 113.101 | 43.10 | 69.49 | 1208 |
| 100.000 | 24.686 | .04051 | .68209 | 30.5666 | 558.457 | 2264.5 | 2831.6 | 120.400 | 41.69 | 69.14 | 1142 |
| 110.000 | 24.134 | .04143 | .63426 | 27.0473 | 486.208 | 2942.2 | 3522.3 | 126.990 | 40.78 | 69.19 | 1077 |
| 120.000 | 23.573 | .04242 | .59524 | 23.9746 | 423.668 | 3621.4 | 4215.3 | 133.022 | 40.22 | 69.51 | 1015 |
| 130.000 | 23.002 | .04347 | .56309 | 21.2693 | 368.994 | 4304.7 | 4913.4 | 138.606 | 39.92 | 70.04 | 954 |
| 140.000 | 22.420 | .04460 | .53645 | 18.8709 | 320.790 | 4993.5 | 5618.0 | 143.821 | 39.83 | 70.75 | 895 |
| 150.000 | 21.825 | .04582 | .51433 | 16.7321 | 277.994 | 5688.9 | 6330.4 | 148.732 | 39.93 | 71.64 | 838 |
| 160.000 | 21.215 | .04714 | .49604 | 14.8152 | 239.792 | 6392.1 | 7052.0 | 153.389 | 40.19 | 72.73 | 781 |
| 170.000 | 20.588 | .04857 | .48108 | 13.0897 | 205.556 | 7104.8 | 7784.8 | 157.836 | 40.58 | 74.01 | 726 |
| 180.000 | 19.941 | .05015 | .46912 | 11.5306 | 174.811 | 7829.1 | 8531.2 | 162.107 | 41.04 | 75.47 | 672 |
| 190.000 | 19.268 | .05190 | .45995 | 10.1171 | 147.192 | 8567.0 | 9293.6 | 166.229 | 41.46 | 77.05 | 620 |
| 200.000 | 18.564 | .05387 | .45352 | 8.8321 | 122.429 | 9319.0 | 10073.1 | 170.222 | 41.68 | 78.66 | 570 |
| 210.000 | 17.822 | .05611 | .44990 | 7.6616 | 100.327 | 10083.1 | 10868.7 | 174.099 | 41.55 | 80.23 | 522 |
| 220.000 | 17.033 | .05871 | .44934 | 6.5941 | 80.759 | 10855.4 | 11677.3 | 177.867 | 41.01 | 81.84 | 476 |
| 230.000 | 16.184 | .06179 | .45234 | 5.6205 | 63.662 | 11645.0 | 12510.0 | 181.561 | 41.52 | 85.09 | 428 |
| 240.000 | 15.262 | .06552 | .45970 | 4.7346 | 49.049 | 12437.1 | 13354.4 | 185.152 | 45.41 | 92.50 | 375 |
| 250.000 | 14.249 | .07018 | .47269 | 3.9338 | 37.019 | 13319.6 | 14302.1 | 189.020 | 45.86 | 97.33 | 332 |
| 260.000 | 13.136 | .07613 | .49300 | 3.2211 | 27.774 | 14238.1 | 15303.9 | 192.949 | 46.74 | 103.02 | 293 |
| 270.000 | 11.944 | .08372 | .52211 | 2.6078 | 21.542 | 15186.4 | 16358.5 | 196.929 | 47.69 | 107.43 | 261 |
| 280.000 | 10.751 | .09302 | .55936 | 2.1107 | 18.245 | 16136.2 | 17438.4 | 200.856 | 48.54 | 107.70 | 238 |
| 290.000 | 9.663 | .10349 | .60090 | 1.7337 | 17.167 | 17048.8 | 18497.7 | 204.574 | 49.26 | 103.64 | 225 |
| 300.000 | 8.738 | .11445 | .64236 | 1.4572 | 17.312 | 17904.1 | 19506.3 | 207.993 | 49.87 | 98.07 | 218 |
| 310.000 | 7.971 | .12546 | .68143 | 1.2526 | 17.973 | 18704.7 | 20461.1 | 211.124 | 50.44 | 93.04 | 216 |
| 320.000 | 7.333 | .13636 | .71753 | 1.0971 | 18.825 | 19461.7 | 21370.7 | 214.013 | 51.01 | 89.05 | 215 |
| 330.000 | 6.798 | .14710 | .75058 | .9757 | 19.866 | 20185.1 | 22244.5 | 216.702 | 51.58 | 85.79 | 215 |
| 340.000 | 6.345 | .15760 | .78048 | .8790 | 21.083 | 20882.2 | 23088.5 | 219.221 | 52.15 | 83.10 | 217 |
| 350.000 | 5.959 | .16781 | .80729 | .8007 | 22.410 | 21559.0 | 23908.3 | 221.598 | 52.73 | 80.93 | 220 |
| 360.000 | 5.627 | .17772 | .83124 | .7361 | 23.797 | 22220.5 | 24708.6 | 223.853 | 53.32 | 79.21 | 223 |
| 370.000 | 5.338 | .18735 | .85260 | .6819 | 25.208 | 22870.7 | 25493.6 | 226.004 | 53.90 | 77.86 | 226 |
| 380.000 | 5.083 | .19672 | .87167 | .6359 | 26.624 | 23512.7 | 26266.8 | 228.066 | 54.48 | 76.82 | 229 |
| 390.000 | 4.858 | .20584 | .88872 | .5963 | 28.033 | 24148.9 | 27030.8 | 230.050 | 55.05 | 76.01 | 233 |
| 400.000 | 4.657 | .21475 | .90400 | .5618 | 29.428 | 24781.2 | 27787.7 | 231.966 | 55.62 | 75.40 | 237 |
| 410.000 | 4.475 | .22346 | .91771 | .5315 | 30.806 | 25410.8 | 28539.3 | 233.822 | 56.17 | 74.94 | 240 |
| 420.000 | 4.311 | .23199 | .93005 | .5047 | 32.165 | 26039.1 | 29286.9 | 235.624 | 56.70 | 74.60 | 244 |
| 430.000 | 4.161 | .24035 | .94118 | .4807 | 33.504 | 26666.7 | 30031.7 | 237.377 | 57.23 | 74.36 | 247 |
| 440.000 | 4.023 | .24857 | .95123 | .4592 | 34.822 | 27294.5 | 30774.4 | 239.084 | 57.74 | 74.20 | 251 |
| 450.000 | 3.896 | .25665 | .96034 | .4397 | 36.121 | 27922.8 | 31515.9 | 240.750 | 58.23 | 74.10 | 254 |
| 460.000 | 3.779 | .26461 | .96859 | .4220 | 37.400 | 28552.1 | 32256.6 | 242.378 | 58.71 | 74.05 | 257 |
| 470.000 | 3.670 | .27246 | .97609 | .4058 | 38.660 | 29182.7 | 32997.1 | 243.971 | 59.18 | 74.04 | 261 |
| 480.000 | 3.569 | .28020 | .98292 | .3910 | 39.903 | 29814.8 | 33737.6 | 245.530 | 59.63 | 74.07 | 264 |
| 490.000 | 3.474 | .28785 | .98914 | .3773 | 41.128 | 30448.7 | 34478.5 | 247.057 | 60.06 | 74.12 | 267 |
| 500.000 | 3.385 | .29540 | .99481 | .3647 | 42.337 | 31084.4 | 35220.1 | 248.556 | 60.48 | 74.19 | 270 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 160 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 69.300 | 26.350 | .03795 | 1.05385 | 45.8429 | 884.322 | 132.7 | 739.9 | 94.459 | 48.78 | 72.50 | 1360 |
| 70.000 | 26.313 | .03800 | 1.04475 | 45.4001 | 874.880 | 182.6 | 790.7 | 95.187 | 48.50 | 72.32 | 1355 |
| 80.000 | 25.790 | .03877 | .93268 | 39.6853 | 753.588 | 883.9 | 1504.3 | 104.706 | 45.26 | 70.39 | 1284 |
| 90.000 | 25.260 | .03959 | .84646 | 34.8990 | 653.013 | 1569.9 | 2203.3 | 112.933 | 43.10 | 69.41 | 1217 |
| 100.000 | 24.722 | .04045 | .77841 | 30.8199 | 568.190 | 2247.5 | 2894.7 | 120.222 | 41.68 | 69.03 | 1151 |
| 110.000 | 24.175 | .04137 | .72364 | 27.2969 | 495.662 | 2922.4 | 3584.2 | 126.800 | 40.77 | 69.06 | 1087 |
| 120.000 | 23.620 | .04234 | .67893 | 24.2226 | 432.924 | 3598.4 | 4275.8 | 132.820 | 40.21 | 69.36 | 1025 |
| 130.000 | 23.056 | .04337 | .64204 | 21.5172 | 378.118 | 4278.2 | 4972.1 | 138.390 | 39.91 | 69.85 | 965 |
| 140.000 | 22.481 | .04448 | .61141 | 19.1203 | 329.839 | 4962.9 | 5674.6 | 143.590 | 39.81 | 70.52 | 907 |
| 150.000 | 21.896 | .04567 | .58591 | 16.9845 | 287.015 | 5653.7 | 6384.4 | 148.482 | 39.90 | 71.35 | 850 |
| 160.000 | 21.297 | .04695 | .56473 | 15.0722 | 248.825 | 6351.5 | 7102.7 | 153.119 | 40.16 | 72.36 | 794 |
| 170.000 | 20.684 | .04835 | .54728 | 13.3528 | 214.636 | 7057.9 | 7831.4 | 157.540 | 40.54 | 73.55 | 740 |
| 180.000 | 20.052 | .04987 | .53315 | 11.8015 | 183.964 | 7774.7 | 8572.6 | 161.781 | 40.99 | 74.88 | 688 |
| 190.000 | 19.399 | .05155 | .52209 | 10.3978 | 156.436 | 8503.6 | 9328.4 | 165.867 | 41.39 | 76.28 | 637 |
| 200.000 | 18.721 | .05342 | .51395 | 9.1248 | 131.773 | 9244.4 | 10099.1 | 169.816 | 41.60 | 77.65 | 588 |
| 210.000 | 18.013 | .05552 | .50873 | 7.9686 | 109.767 | 9994.7 | 10882.9 | 173.635 | 41.43 | 78.88 | 542 |
| 220.000 | 17.267 | .05791 | .50658 | 6.9178 | 90.271 | 10749.0 | 11675.7 | 177.330 | 40.86 | 79.98 | 498 |
| 230.000 | 16.477 | .06069 | .50778 | 5.9637 | 73.193 | 11515.3 | 12486.4 | 180.926 | 41.33 | 82.50 | 453 |
| 240.000 | 15.635 | .06396 | .51285 | 5.0996 | 58.495 | 12276.3 | 13299.6 | 184.385 | 45.16 | 88.82 | 402 |
| 250.000 | 14.731 | .06788 | .52252 | 4.3215 | 46.191 | 13117.1 | 14203.2 | 188.073 | 45.55 | 92.12 | 362 |
| 260.000 | 13.764 | .07266 | .53774 | 3.6285 | 36.353 | 13981.7 | 15144.1 | 191.763 | 46.37 | 96.08 | 325 |
| 270.000 | 12.742 | .07848 | .55936 | 3.0237 | 29.073 | 14867.8 | 16123.5 | 195.459 | 47.31 | 99.61 | 293 |
| 280.000 | 11.700 | .08547 | .58740 | 2.5134 | 24.338 | 15762.7 | 17130.2 | 199.120 | 48.22 | 101.31 | 268 |
| 290.000 | 10.698 | .09348 | .62028 | 2.1012 | 21.841 | 16644.8 | 18140.4 | 202.665 | 49.05 | 100.27 | 250 |
| 300.000 | 9.790 | .10214 | .65520 | 1.7804 | 20.959 | 17494.2 | 19128.5 | 206.014 | 49.78 | 97.12 | 239 |
| 310.000 | 9.001 | .11110 | .68964 | 1.5344 | 21.032 | 18303.0 | 20080.5 | 209.136 | 50.45 | 93.28 | 234 |
| 320.000 | 8.327 | .12010 | .72222 | 1.3443 | 21.584 | 19073.6 | 20995.1 | 212.040 | 51.08 | 89.72 | 231 |
| 330.000 | 7.749 | .12904 | .75250 | 1.1947 | 22.347 | 19812.5 | 21877.1 | 214.755 | 51.69 | 86.79 | 229 |
| 340.000 | 7.252 | .13790 | .78047 | 1.0744 | 23.220 | 20526.6 | 22732.9 | 217.310 | 52.30 | 84.44 | 229 |
| 350.000 | 6.820 | .14663 | .80618 | .9760 | 24.229 | 21221.2 | 23567.2 | 219.728 | 52.90 | 82.48 | 230 |
| 360.000 | 6.443 | .15521 | .82965 | .8944 | 25.361 | 21900.3 | 24383.6 | 222.028 | 53.49 | 80.85 | 232 |
| 370.000 | 6.112 | .16362 | .85095 | .8259 | 26.579 | 22567.3 | 25185.2 | 224.225 | 54.08 | 79.50 | 234 |
| 380.000 | 5.819 | .17184 | .87023 | .7677 | 27.851 | 23225.0 | 25974.5 | 226.330 | 54.66 | 78.41 | 237 |
| 390.000 | 5.559 | .17990 | .88765 | .7177 | 29.154 | 23875.7 | 26754.0 | 228.355 | 55.23 | 77.53 | 240 |
| 400.000 | 5.325 | .18778 | .90339 | .6742 | 30.470 | 24521.2 | 27525.7 | 230.308 | 55.79 | 76.83 | 243 |
| 410.000 | 5.115 | .19550 | .91761 | .6362 | 31.789 | 25163.1 | 28291.2 | 232.199 | 56.34 | 76.29 | 246 |
| 420.000 | 4.924 | .20308 | .93048 | .6025 | 33.105 | 25802.6 | 29051.9 | 234.032 | 56.87 | 75.87 | 249 |
| 430.000 | 4.750 | .21052 | .94213 | .5726 | 34.413 | 26440.5 | 29808.9 | 235.813 | 57.39 | 75.55 | 252 |
| 440.000 | 4.591 | .21783 | .95270 | .5458 | 35.709 | 27077.8 | 30563.1 | 237.547 | 57.90 | 75.31 | 255 |
| 450.000 | 4.444 | .22503 | .96230 | .5216 | 36.993 | 27714.9 | 31315.3 | 239.237 | 58.38 | 75.14 | 258 |
| 460.000 | 4.308 | .23212 | .97103 | .4997 | 38.264 | 28352.3 | 32066.2 | 240.887 | 58.86 | 75.03 | 262 |
| 470.000 | 4.182 | .23910 | .97897 | .4797 | 39.520 | 28990.5 | 32816.1 | 242.500 | 59.32 | 74.97 | 265 |
| 480.000 | 4.065 | .24600 | .98622 | .4614 | 40.763 | 29629.7 | 33565.6 | 244.078 | 59.76 | 74.94 | 268 |
| 490.000 | 3.956 | .25281 | .99283 | .4447 | 41.990 | 30270.1 | 34315.0 | 245.623 | 60.19 | 74.94 | 271 |
| 500.000 | 3.853 | .25954 | .99887 | .4292 | 43.205 | 30911.9 | 35064.5 | 247.138 | 60.61 | 74.97 | 274 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 180 BAR

| T K | DEN MOL/L | VOL L/MOL | Z | DP/DT BAR/K | DP/DD BAR-L/MOL | E J/MOL | H J/MOL | S J/MOL/K | CV J/MOL/K | CP J/MOL/K | W M/SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 69.661 | 26.353 | .03795 | 1.17926 | 45.8942 | 890.772 | 148.6 | 831.7 | 94.687 | 48.63 | 72.35 | 1366 |
| 70.000 | 26.336 | .03797 | 1.17433 | 45.6801 | 886.190 | 172.7 | 856.2 | 95.038 | 48.50 | 72.26 | 1363 |
| 80.000 | 25.817 | .03873 | 1.04820 | 39.9518 | 764.205 | 872.0 | 1569.2 | 104.548 | 45.26 | 70.33 | 1293 |
| 90.000 | 25.290 | .03954 | .95113 | 35.1563 | 663.113 | 1555.7 | 2267.4 | 112.766 | 43.09 | 69.32 | 1225 |
| 100.000 | 24.756 | .04039 | .87448 | 31.0709 | 577.903 | 2230.8 | 2957.9 | 120.045 | 41.67 | 68.93 | 1160 |
| 110.000 | 24.215 | .04130 | .81275 | 27.5441 | 505.087 | 2902.9 | 3646.3 | 126.613 | 40.76 | 68.94 | 1096 |
| 120.000 | 23.666 | .04226 | .76232 | 24.4676 | 442.141 | 3576.0 | 4336.5 | 132.621 | 40.20 | 69.21 | 1035 |
| 130.000 | 23.108 | .04328 | .72066 | 21.7618 | 387.192 | 4252.3 | 5031.2 | 138.178 | 39.89 | 69.67 | 975 |
| 140.000 | 22.541 | .04436 | .68601 | 19.3658 | 338.825 | 4933.2 | 5731.7 | 143.362 | 39.80 | 70.29 | 918 |
| 150.000 | 21.965 | .04553 | .65709 | 17.2323 | 295.958 | 5619.5 | 6439.0 | 148.238 | 39.88 | 71.08 | 861 |
| 160.000 | 21.376 | .04678 | .63297 | 15.3235 | 257.763 | 6312.3 | 7154.3 | 152.855 | 40.13 | 72.03 | 807 |
| 170.000 | 20.775 | .04814 | .61298 | 13.6091 | 223.600 | 7012.8 | 7879.2 | 157.254 | 40.50 | 73.13 | 754 |
| 180.000 | 20.158 | .04961 | .59664 | 12.0642 | 192.975 | 7722.8 | 8615.7 | 161.468 | 40.94 | 74.35 | 702 |
| 190.000 | 19.524 | .05122 | .58361 | 10.6684 | 165.510 | 8443.5 | 9365.4 | 165.522 | 41.33 | 75.61 | 653 |
| 200.000 | 18.868 | .05300 | .57370 | 9.4047 | 140.915 | 9174.6 | 10128.6 | 169.431 | 41.52 | 76.79 | 605 |
| 210.000 | 18.187 | .05498 | .56682 | 8.2595 | 118.969 | 9912.8 | 10902.5 | 173.202 | 41.34 | 77.74 | 561 |
| 220.000 | 17.478 | .05722 | .56302 | 7.2213 | 99.510 | 10652.3 | 11682.1 | 176.836 | 40.74 | 78.48 | 519 |
| 230.000 | 16.734 | .05976 | .56247 | 6.2812 | 82.421 | 11399.8 | 12475.4 | 180.355 | 41.18 | 80.49 | 476 |
| 240.000 | 15.952 | .06269 | .56547 | 5.4320 | 67.630 | 12137.0 | 13265.4 | 183.715 | 44.97 | 86.12 | 427 |
| 250.000 | 15.127 | .06611 | .57246 | 4.6687 | 55.100 | 12947.8 | 14137.7 | 187.275 | 45.31 | 88.53 | 389 |
| 260.000 | 14.258 | .07014 | .58399 | 3.9883 | 44.832 | 13775.3 | 15037.7 | 190.805 | 46.10 | 91.48 | 353 |
| 270.000 | 13.352 | .07490 | .60054 | 3.3900 | 36.839 | 14618.7 | 15966.9 | 194.311 | 47.02 | 94.27 | 322 |
| 280.000 | 12.426 | .08047 | .62221 | 2.8750 | 31.094 | 15471.6 | 16920.2 | 197.778 | 47.95 | 96.15 | 296 |
| 290.000 | 11.515 | .08684 | .64828 | 2.4439 | 27.432 | 16321.5 | 17884.6 | 201.162 | 48.83 | 96.45 | 276 |
| 300.000 | 10.657 | .09384 | .67716 | 2.0935 | 25.486 | 17154.4 | 18843.4 | 204.413 | 49.64 | 95.06 | 262 |
| 310.000 | 9.879 | .10123 | .70691 | 1.8143 | 24.763 | 17960.3 | 19782.3 | 207.491 | 50.38 | 92.60 | 253 |
| 320.000 | 9.192 | .10879 | .73601 | 1.5931 | 24.804 | 18736.3 | 20694.5 | 210.388 | 51.07 | 89.83 | 247 |
| 330.000 | 8.591 | .11640 | .76359 | 1.4166 | 25.274 | 19484.4 | 21579.5 | 213.111 | 51.74 | 87.23 | 244 |
| 340.000 | 8.067 | .12396 | .78932 | 1.2738 | 25.967 | 20209.2 | 22440.5 | 215.681 | 52.38 | 85.03 | 243 |
| 350.000 | 7.606 | .13147 | .81318 | 1.1565 | 26.765 | 20915.0 | 23281.4 | 218.119 | 53.00 | 83.23 | 243 |
| 360.000 | 7.200 | .13890 | .83527 | 1.0586 | 27.646 | 21606.0 | 24106.2 | 220.443 | 53.61 | 81.76 | 243 |
| 370.000 | 6.838 | .14624 | .85564 | .9760 | 28.626 | 22285.3 | 24917.5 | 222.666 | 54.21 | 80.54 | 244 |
| 380.000 | 6.516 | .15347 | .87436 | .9054 | 29.697 | 22955.1 | 25717.6 | 224.800 | 54.80 | 79.51 | 246 |
| 390.000 | 6.227 | .16060 | .89148 | .8447 | 30.837 | 23617.5 | 26508.2 | 226.853 | 55.37 | 78.65 | 248 |
| 400.000 | 5.966 | .16760 | .90711 | .7920 | 32.025 | 24274.1 | 27291.0 | 228.835 | 55.93 | 77.94 | 250 |
| 410.000 | 5.731 | .17449 | .92136 | .7458 | 33.242 | 24926.6 | 28067.4 | 230.753 | 56.48 | 77.36 | 253 |
| 420.000 | 5.517 | .18127 | .93434 | .7050 | 34.478 | 25575.9 | 28838.7 | 232.611 | 57.01 | 76.90 | 255 |
| 430.000 | 5.321 | .18793 | .94617 | .6688 | 35.722 | 26223.0 | 29605.8 | 234.416 | 57.53 | 76.54 | 258 |
| 440.000 | 5.142 | .19449 | .95695 | .6363 | 36.968 | 26868.9 | 30369.8 | 236.173 | 58.03 | 76.26 | 261 |
| 450.000 | 4.976 | .20096 | .96678 | .6071 | 38.213 | 27514.0 | 31131.2 | 237.884 | 58.52 | 76.04 | 264 |
| 460.000 | 4.823 | .20733 | .97574 | .5807 | 39.452 | 28158.9 | 31890.8 | 239.553 | 58.99 | 75.89 | 267 |
| 470.000 | 4.681 | .21361 | .98393 | .5567 | 40.685 | 28804.1 | 32649.2 | 241.184 | 59.44 | 75.78 | 270 |
| 480.000 | 4.549 | .21982 | .99142 | .5348 | 41.909 | 29449.9 | 33406.6 | 242.779 | 59.89 | 75.71 | 273 |
| 490.000 | 4.426 | .22595 | .99826 | .5147 | 43.123 | 30096.5 | 34163.5 | 244.339 | 60.31 | 75.68 | 276 |
| 500.000 | 4.310 | .23200 | 1.00453 | .4961 | 44.328 | 30744.1 | 34920.2 | 245.868 | 60.72 | 75.67 | 278 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 200 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 70.021 | 26.357 | .03794 | 1.30337 | 45.9455 | 897.227 | 164.4 | 923.2 | 94.911 | 48.49 | 72.20 | 1371 |
| 80.000 | 25.843 | .03870 | 1.16349 | 40.2167 | 774.820 | 860.2 | 1634.1 | 104.392 | 45.25 | 70.26 | 1301 |
| 90.000 | 25.320 | .03949 | 1.05556 | 35.4117 | 673.203 | 1541.7 | 2331.6 | 112.601 | 43.09 | 69.24 | 1234 |
| 100.000 | 24.791 | .04034 | .97029 | 31.3198 | 587.598 | 2214.4 | 3021.2 | 119.871 | 41.67 | 68.83 | 1169 |
| 110.000 | 24.254 | .04123 | .90160 | 27.7887 | 514.485 | 2883.9 | 3708.5 | 126.428 | 40.75 | 68.82 | 1106 |
| 120.000 | 23.710 | .04218 | .84542 | 24.7098 | 451.322 | 3553.9 | 4397.4 | 132.425 | 40.19 | 69.06 | 1045 |
| 130.000 | 23.159 | .04318 | .79897 | 22.0030 | 396.219 | 4226.9 | 5090.5 | 137.969 | 39.88 | 69.50 | 986 |
| 140.000 | 22.600 | .04425 | .76027 | 19.6074 | 347.752 | 4904.1 | 5789.1 | 143.140 | 39.78 | 70.08 | 928 |
| 150.000 | 22.031 | .04539 | .72789 | 17.4756 | 304.829 | 5586.3 | 6494.1 | 147.999 | 39.86 | 70.82 | 873 |
| 160.000 | 21.453 | .04661 | .70080 | 15.5696 | 266.613 | 6274.3 | 7206.6 | 152.598 | 40.10 | 71.72 | 819 |
| 170.000 | 20.863 | .04793 | .67823 | 13.8592 | 232.456 | 6969.4 | 7928.1 | 156.976 | 40.47 | 72.75 | 767 |
| 180.000 | 20.260 | .04936 | .65962 | 12.3194 | 201.859 | 7673.0 | 8660.2 | 161.166 | 40.90 | 73.87 | 716 |
| 190.000 | 19.641 | .05091 | .64457 | 10.9298 | 174.434 | 8386.3 | 9404.6 | 165.191 | 41.28 | 75.01 | 668 |
| 200.000 | 19.006 | .05262 | .63283 | 9.6737 | 149.880 | 9108.7 | 10161.0 | 169.065 | 41.46 | 76.03 | 622 |
| 210.000 | 18.349 | .05450 | .62424 | 8.5370 | 127.968 | 9836.3 | 10926.3 | 172.794 | 41.26 | 76.78 | 579 |
| 220.000 | 17.670 | .05659 | .61877 | 7.5083 | 108.519 | 10563.2 | 11695.0 | 176.377 | 40.64 | 77.24 | 538 |
| 230.000 | 16.965 | .05895 | .61648 | 6.5784 | 91.400 | 11295.3 | 12474.2 | 179.833 | 41.05 | 78.89 | 497 |
| 240.000 | 16.230 | .06161 | .61754 | 5.7397 | 76.512 | 12013.6 | 13245.9 | 183.116 | 44.82 | 84.05 | 449 |
| 250.000 | 15.464 | .06467 | .62221 | 4.9864 | 63.786 | 12801.4 | 14094.7 | 186.580 | 45.13 | 85.88 | 413 |
| 260.000 | 14.667 | .06818 | .63078 | 4.3142 | 53.178 | 13601.4 | 14965.0 | 189.994 | 45.90 | 88.20 | 379 |
| 270.000 | 13.844 | .07223 | .64353 | 3.7202 | 44.656 | 14413.9 | 15858.6 | 193.365 | 46.80 | 90.46 | 348 |
| 280.000 | 13.006 | .07689 | .66052 | 3.2029 | 38.171 | 15234.9 | 16772.6 | 196.690 | 47.73 | 92.22 | 322 |
| 290.000 | 12.174 | .08214 | .68136 | 2.7608 | 33.604 | 16056.9 | 17699.8 | 199.943 | 48.64 | 93.02 | 300 |
| 300.000 | 11.372 | .08794 | .70509 | 2.3908 | 30.718 | 16870.4 | 18629.1 | 203.093 | 49.49 | 92.66 | 284 |
| 310.000 | 10.624 | .09413 | .73040 | 2.0869 | 29.170 | 17667.0 | 19549.6 | 206.111 | 50.28 | 91.29 | 273 |
| 320.000 | 9.944 | .10057 | .75595 | 1.8398 | 28.577 | 18441.8 | 20453.1 | 208.980 | 51.03 | 89.36 | 265 |
| 330.000 | 9.336 | .10712 | .78078 | 1.6390 | 28.608 | 19194.0 | 21336.3 | 211.698 | 51.73 | 87.28 | 260 |
| 340.000 | 8.796 | .11369 | .80434 | 1.4748 | 29.019 | 19925.5 | 22199.3 | 214.274 | 52.40 | 85.34 | 257 |
| 350.000 | 8.317 | .12024 | .82638 | 1.3391 | 29.650 | 20639.2 | 23044.1 | 216.723 | 53.05 | 83.66 | 256 |
| 360.000 | 7.890 | .12675 | .84689 | 1.2256 | 30.400 | 21338.5 | 23873.4 | 219.060 | 53.68 | 82.26 | 256 |
| 370.000 | 7.508 | .13319 | .86592 | 1.1293 | 31.213 | 22026.2 | 24690.1 | 221.298 | 54.30 | 81.12 | 256 |
| 380.000 | 7.164 | .13958 | .88357 | 1.0469 | 32.093 | 22704.8 | 25496.5 | 223.448 | 54.89 | 80.18 | 256 |
| 390.000 | 6.854 | .14590 | .89990 | .9757 | 33.049 | 23376.1 | 26294.2 | 225.520 | 55.47 | 79.39 | 258 |
| 400.000 | 6.573 | .15215 | .91496 | .9137 | 34.075 | 24041.7 | 27084.7 | 227.522 | 56.04 | 78.72 | 259 |
| 410.000 | 6.317 | .15832 | .92882 | .8592 | 35.156 | 24702.7 | 27869.0 | 229.459 | 56.59 | 78.17 | 261 |
| 420.000 | 6.083 | .16440 | .94156 | .8111 | 36.278 | 25360.3 | 28648.3 | 231.337 | 57.12 | 77.71 | 263 |
| 430.000 | 5.868 | .17040 | .95323 | .7684 | 37.428 | 26015.5 | 29423.5 | 233.161 | 57.64 | 77.33 | 265 |
| 440.000 | 5.671 | .17632 | .96394 | .7301 | 38.598 | 26668.8 | 30195.3 | 234.935 | 58.14 | 77.03 | 268 |
| 450.000 | 5.490 | .18217 | .97375 | .6957 | 39.779 | 27321.1 | 30964.4 | 236.663 | 58.63 | 76.80 | 270 |
| 460.000 | 5.321 | .18793 | .98274 | .6647 | 40.966 | 27972.8 | 31731.4 | 238.349 | 59.10 | 76.62 | 273 |
| 470.000 | 5.165 | .19363 | .99097 | .6364 | 42.155 | 28624.4 | 32496.9 | 239.995 | 59.55 | 76.48 | 276 |
| 480.000 | 5.019 | .19925 | .99852 | .6106 | 43.343 | 29276.1 | 33261.2 | 241.604 | 59.99 | 76.39 | 278 |
| 490.000 | 4.882 | .20481 | 1.00545 | .5870 | 44.529 | 29928.4 | 34024.7 | 243.179 | 60.42 | 76.32 | 281 |
| 500.000 | 4.755 | .21031 | 1.01180 | .5653 | 45.709 | 30581.5 | 34787.8 | 244.720 | 60.83 | 76.29 | 284 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 220 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 70.379 | 26.361 | .03793 | 1.42620 | 45.9967 | 903.687 | 180.1 | 1014.6 | 95.132 | 48.35 | 72.06 | 1377 |
| 80.000 | 25.868 | .03866 | 1.27857 | 40.4798 | 785.431 | 848.6 | 1699.1 | 104.237 | 45.25 | 70.19 | 1309 |
| 90.000 | 25.350 | .03945 | 1.15976 | 35.6652 | 683.283 | 1528.0 | 2395.9 | 112.438 | 43.09 | 69.16 | 1242 |
| 100.000 | 24.825 | .04028 | 1.06587 | 31.5666 | 597.275 | 2198.3 | 3084.6 | 119.698 | 41.66 | 68.74 | 1178 |
| 110.000 | 24.293 | .04116 | .99019 | 28.0310 | 523.858 | 2865.2 | 3770.8 | 126.245 | 40.75 | 68.70 | 1115 |
| 120.000 | 23.754 | .04210 | .92825 | 24.9493 | 460.468 | 3532.4 | 4458.5 | 132.231 | 40.18 | 68.93 | 1054 |
| 130.000 | 23.209 | .04309 | .87697 | 22.2412 | 405.203 | 4202.2 | 5150.1 | 137.763 | 39.87 | 69.33 | 996 |
| 140.000 | 22.656 | .04414 | .83420 | 19.8456 | 356.624 | 4875.8 | 5846.8 | 142.921 | 39.77 | 69.89 | 939 |
| 150.000 | 22.096 | .04526 | .79834 | 17.7147 | 313.632 | 5554.0 | 6549.7 | 147.766 | 39.84 | 70.59 | 884 |
| 160.000 | 21.526 | .04645 | .76824 | 15.8109 | 275.381 | 6237.6 | 7259.6 | 152.347 | 40.08 | 71.43 | 831 |
| 170.000 | 20.947 | .04774 | .74304 | 14.1036 | 241.216 | 6927.6 | 7977.8 | 156.706 | 40.44 | 72.39 | 779 |
| 180.000 | 20.357 | .04912 | .72212 | 12.5678 | 210.629 | 7625.3 | 8706.0 | 160.873 | 40.86 | 73.44 | 730 |
| 190.000 | 19.753 | .05062 | .70501 | 11.1833 | 183.223 | 8331.8 | 9445.6 | 164.872 | 41.23 | 74.47 | 682 |
| 200.000 | 19.135 | .05226 | .69139 | 9.9329 | 158.691 | 9046.3 | 10196.0 | 168.715 | 41.40 | 75.36 | 637 |
| 210.000 | 18.501 | .05405 | .68105 | 8.8029 | 136.791 | 9764.6 | 10953.8 | 172.408 | 41.19 | 75.95 | 596 |
| 220.000 | 17.847 | .05603 | .67389 | 7.7814 | 117.333 | 10480.5 | 11713.2 | 175.948 | 40.55 | 76.20 | 557 |
| 230.000 | 17.174 | .05823 | .66988 | 6.8590 | 100.169 | 11199.5 | 12480.6 | 179.352 | 40.95 | 77.58 | 516 |
| 240.000 | 16.477 | .06069 | .66909 | 6.0278 | 85.181 | 11902.4 | 13237.5 | 182.571 | 44.69 | 82.40 | 470 |
| 250.000 | 15.758 | .06346 | .67164 | 5.2814 | 72.278 | 12671.8 | 14067.9 | 185.960 | 44.99 | 83.84 | 435 |
| 260.000 | 15.017 | .06659 | .67770 | 4.6145 | 61.388 | 13450.6 | 14915.6 | 189.285 | 45.73 | 85.73 | 402 |
| 270.000 | 14.257 | .07014 | .68739 | 4.0231 | 52.449 | 14239.3 | 15782.4 | 192.556 | 46.63 | 87.62 | 372 |
| 280.000 | 13.486 | .07415 | .70071 | 3.5041 | 45.393 | 15035.6 | 16666.9 | 195.773 | 47.56 | 89.20 | 346 |
| 290.000 | 12.718 | .07863 | .71741 | 3.0545 | 40.116 | 15834.6 | 17564.4 | 198.922 | 48.47 | 90.17 | 324 |
| 300.000 | 11.969 | .08355 | .73688 | 2.6712 | 36.446 | 16629.7 | 18467.7 | 201.984 | 49.35 | 90.35 | 306 |
| 310.000 | 11.258 | .08883 | .75819 | 2.3485 | 34.134 | 17414.4 | 19368.6 | 204.938 | 50.18 | 89.72 | 293 |
| 320.000 | 10.597 | .09437 | .78032 | 2.0811 | 32.883 | 18183.9 | 20260.1 | 207.768 | 50.96 | 88.49 | 283 |
| 330.000 | 9.993 | .10007 | .80237 | 1.8594 | 32.398 | 18936.0 | 21137.5 | 210.469 | 51.70 | 86.96 | 277 |
| 340.000 | 9.448 | .10584 | .82369 | 1.6758 | 32.432 | 19670.7 | 21999.2 | 213.041 | 52.40 | 85.38 | 272 |
| 350.000 | 8.958 | .11163 | .84392 | 1.5226 | 32.803 | 20389.6 | 22845.5 | 215.494 | 53.07 | 83.90 | 270 |
| 360.000 | 8.518 | .11740 | .86290 | 1.3938 | 33.382 | 21095.0 | 23677.8 | 217.839 | 53.72 | 82.60 | 268 |
| 370.000 | 8.121 | .12314 | .88058 | 1.2843 | 34.087 | 21789.2 | 24498.2 | 220.087 | 54.35 | 81.50 | 268 |
| 380.000 | 7.762 | .12883 | .89703 | 1.1904 | 34.862 | 22474.3 | 25308.4 | 222.248 | 54.96 | 80.59 | 268 |
| 390.000 | 7.437 | .13447 | .91232 | 1.1090 | 35.682 | 23152.2 | 26110.6 | 224.332 | 55.55 | 79.86 | 268 |
| 400.000 | 7.140 | .14006 | .92652 | 1.0379 | 36.557 | 23824.6 | 26906.0 | 226.345 | 56.12 | 79.24 | 269 |
| 410.000 | 6.868 | .14561 | .93969 | .9753 | 37.492 | 24492.4 | 27695.8 | 228.296 | 56.68 | 78.73 | 270 |
| 420.000 | 6.618 | .15109 | .95188 | .9200 | 38.481 | 25156.8 | 28480.9 | 230.188 | 57.21 | 78.30 | 272 |
| 430.000 | 6.389 | .15652 | .96315 | .8707 | 39.516 | 25818.5 | 29262.0 | 232.026 | 57.73 | 77.94 | 274 |
| 440.000 | 6.177 | .16189 | .97354 | .8265 | 40.586 | 26478.3 | 30039.9 | 233.814 | 58.24 | 77.65 | 276 |
| 450.000 | 5.981 | .16720 | .98311 | .7868 | 41.683 | 27136.8 | 30815.1 | 235.556 | 58.72 | 77.41 | 278 |
| 460.000 | 5.799 | .17244 | .99192 | .7510 | 42.798 | 27794.4 | 31588.2 | 237.255 | 59.19 | 77.22 | 280 |
| 470.000 | 5.630 | .17763 | 1.00003 | .7184 | 43.926 | 28451.7 | 32359.6 | 238.914 | 59.65 | 77.07 | 282 |
| 480.000 | 5.471 | .18277 | 1.00749 | .6886 | 45.062 | 29108.9 | 33129.7 | 240.536 | 60.08 | 76.96 | 285 |
| 490.000 | 5.324 | .18784 | 1.01435 | .6614 | 46.203 | 29766.3 | 33898.9 | 242.122 | 60.51 | 76.88 | 287 |
| 500.000 | 5.185 | .19287 | 1.02065 | .6364 | 47.346 | 30424.3 | 34667.4 | 243.674 | 60.92 | 76.83 | 289 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 250 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 70.913 | 26.367 | .03793 | 1.60811 | 46.0734 | 913.385 | 203.3 | 1151.4 | 95.457 | 48.14 | 71.84 | 1385 |
| 80.000 | 25.906 | .03860 | 1.45080 | 40.8715 | 801.347 | 831.6 | 1796.6 | 104.008 | 45.25 | 70.10 | 1322 |
| 90.000 | 25.393 | .03938 | 1.31566 | 36.0420 | 698.387 | 1507.8 | 2492.3 | 112.196 | 43.08 | 69.04 | 1255 |
| 100.000 | 24.874 | .04020 | 1.20880 | 31.9330 | 611.762 | 2174.7 | 3179.8 | 119.443 | 41.66 | 68.60 | 1191 |
| 110.000 | 24.349 | .04107 | 1.12260 | 28.3902 | 537.875 | 2837.8 | 3864.5 | 125.976 | 40.74 | 68.54 | 1128 |
| 120.000 | 23.819 | .04198 | 1.05198 | 25.3039 | 474.130 | 3500.8 | 4550.4 | 131.946 | 40.17 | 68.73 | 1068 |
| 130.000 | 23.282 | .04295 | .99344 | 22.5931 | 418.603 | 4166.0 | 5239.8 | 137.461 | 39.85 | 69.10 | 1011 |
| 140.000 | 22.739 | .04398 | .94451 | 20.1965 | 369.838 | 4834.6 | 5934.1 | 142.600 | 39.75 | 69.61 | 955 |
| 150.000 | 22.189 | .04507 | .90337 | 18.0663 | 326.722 | 5507.2 | 6633.9 | 147.424 | 39.82 | 70.25 | 901 |
| 160.000 | 21.633 | .04623 | .86870 | 16.1645 | 288.396 | 6184.5 | 7340.1 | 151.982 | 40.05 | 71.03 | 848 |
| 170.000 | 21.068 | .04746 | .83951 | 14.4604 | 254.192 | 6867.3 | 8053.9 | 156.314 | 40.40 | 71.91 | 798 |
| 180.000 | 20.495 | .04879 | .81506 | 12.9291 | 223.590 | 7557.1 | 8776.9 | 160.451 | 40.82 | 72.85 | 749 |
| 190.000 | 19.911 | .05022 | .79479 | 11.5501 | 196.184 | 8254.4 | 9510.0 | 164.415 | 41.17 | 73.76 | 703 |
| 200.000 | 19.317 | .05177 | .77828 | 10.3062 | 171.653 | 8958.3 | 10252.5 | 168.218 | 41.33 | 74.50 | 660 |
| 210.000 | 18.710 | .05345 | .76526 | 9.1833 | 149.740 | 9664.6 | 11000.7 | 171.864 | 41.10 | 74.88 | 619 |
| 220.000 | 18.090 | .05528 | .75552 | 8.1695 | 130.243 | 10366.4 | 11748.4 | 175.349 | 40.45 | 74.89 | 582 |
| 230.000 | 17.455 | .05729 | .74894 | 7.2548 | 112.993 | 11069.1 | 12501.3 | 178.689 | 40.82 | 75.98 | 544 |
| 240.000 | 16.806 | .05950 | .74548 | 6.4310 | 97.853 | 11753.0 | 13240.6 | 181.833 | 44.54 | 80.46 | 498 |
| 250.000 | 16.141 | .06195 | .74513 | 5.6909 | 84.710 | 12500.8 | 14049.6 | 185.135 | 44.81 | 81.50 | 465 |
| 260.000 | 15.463 | .06467 | .74790 | 5.0284 | 73.464 | 13255.1 | 14871.9 | 188.360 | 45.54 | 82.97 | 434 |
| 270.000 | 14.773 | .06769 | .75380 | 4.4386 | 64.027 | 14016.9 | 15709.2 | 191.520 | 46.42 | 84.48 | 405 |
| 280.000 | 14.078 | .07103 | .76277 | 3.9169 | 56.312 | 14785.2 | 16561.0 | 194.618 | 47.35 | 85.83 | 379 |
| 290.000 | 13.385 | .07471 | .77460 | 3.4593 | 50.219 | 15557.0 | 17424.7 | 197.648 | 48.27 | 86.84 | 356 |
| 300.000 | 12.704 | .07871 | .78892 | 3.0619 | 45.617 | 16328.4 | 18296.2 | 200.602 | 49.17 | 87.37 | 337 |
| 310.000 | 12.047 | .08301 | .80515 | 2.7201 | 42.334 | 17095.0 | 19170.3 | 203.468 | 50.03 | 87.37 | 322 |
| 320.000 | 11.422 | .08755 | .82262 | 2.4289 | 40.163 | 17853.2 | 20041.9 | 206.235 | 50.85 | 86.88 | 310 |
| 330.000 | 10.839 | .09226 | .84062 | 2.1821 | 38.877 | 18600.2 | 20906.7 | 208.897 | 51.63 | 86.03 | 302 |
| 340.000 | 10.300 | .09708 | .85856 | 1.9734 | 38.260 | 19334.8 | 21761.8 | 211.450 | 52.37 | 84.98 | 295 |
| 350.000 | 9.807 | .10197 | .87599 | 1.7968 | 38.127 | 20057.0 | 22606.2 | 213.898 | 53.07 | 83.88 | 291 |
| 360.000 | 9.357 | .10687 | .89262 | 1.6466 | 38.333 | 20767.9 | 23439.7 | 216.246 | 53.75 | 82.83 | 288 |
| 370.000 | 8.947 | .11177 | .90832 | 1.5180 | 38.769 | 21468.8 | 24263.2 | 218.502 | 54.40 | 81.87 | 286 |
| 380.000 | 8.573 | .11665 | .92302 | 1.4072 | 39.358 | 22161.3 | 25077.6 | 220.674 | 55.02 | 81.04 | 285 |
| 390.000 | 8.230 | .12150 | .93674 | 1.3109 | 40.047 | 22846.8 | 25884.3 | 222.769 | 55.63 | 80.33 | 285 |
| 400.000 | 7.917 | .12632 | .94951 | 1.2266 | 40.799 | 23526.7 | 26684.6 | 224.796 | 56.21 | 79.74 | 285 |
| 410.000 | 7.628 | .13109 | .96140 | 1.1522 | 41.588 | 24202.2 | 27479.6 | 226.759 | 56.77 | 79.27 | 285 |
| 420.000 | 7.362 | .13584 | .97247 | 1.0863 | 42.411 | 24874.3 | 28270.3 | 228.664 | 57.32 | 78.88 | 286 |
| 430.000 | 7.115 | .14055 | .98278 | 1.0274 | 43.275 | 25543.7 | 29057.4 | 230.516 | 57.84 | 78.56 | 287 |
| 440.000 | 6.886 | .14522 | .99236 | .9745 | 44.182 | 26211.2 | 29841.6 | 232.319 | 58.35 | 78.29 | 288 |
| 450.000 | 6.673 | .14985 | 1.00126 | .9269 | 45.129 | 26877.2 | 30623.4 | 234.076 | 58.84 | 78.07 | 290 |
| 460.000 | 6.475 | .15444 | 1.00951 | .8838 | 46.110 | 27542.2 | 31403.2 | 235.790 | 59.31 | 77.90 | 292 |
| 470.000 | 6.290 | .15899 | 1.01714 | .8446 | 47.121 | 28206.6 | 32181.4 | 237.463 | 59.76 | 77.75 | 293 |
| 480.000 | 6.116 | .16350 | 1.02421 | .8089 | 48.154 | 28870.8 | 32958.4 | 239.099 | 60.20 | 77.64 | 295 |
| 490.000 | 5.953 | .16797 | 1.03074 | .7761 | 49.204 | 29535.0 | 33734.3 | 240.699 | 60.63 | 77.55 | 297 |
| 500.000 | 5.800 | .17240 | 1.03677 | .7461 | 50.267 | 30199.4 | 34509.5 | 242.265 | 61.03 | 77.49 | 299 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 300 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 71.796 | 26.377 | .03791 | 1.90527 | 46.2008 | 929.573 | 241.3 | 1378.7 | 95.984 | 47.81 | 71.50 | 1399 |
| 80.000 | 25.968 | .03851 | 1.73685 | 41.5165 | 827.873 | 804.1 | 1959.3 | 103.632 | 45.24 | 69.95 | 1342 |
| 90.000 | 25.464 | .03927 | 1.57443 | 36.6616 | 723.527 | 1475.2 | 2653.4 | 111.800 | 43.08 | 68.86 | 1276 |
| 100.000 | 24.954 | .04007 | 1.44590 | 32.5342 | 635.838 | 2136.6 | 3338.8 | 119.027 | 41.65 | 68.38 | 1212 |
| 110.000 | 24.440 | .04092 | 1.34211 | 28.9782 | 561.131 | 2793.7 | 4021.2 | 125.537 | 40.73 | 68.28 | 1151 |
| 120.000 | 23.922 | .04180 | 1.25694 | 25.8827 | 496.758 | 3450.2 | 4704.4 | 131.484 | 40.15 | 68.43 | 1091 |
| 130.000 | 23.398 | .04274 | 1.18620 | 23.1660 | 440.755 | 4108.4 | 5390.5 | 136.972 | 39.83 | 68.75 | 1035 |
| 140.000 | 22.870 | .04372 | 1.12690 | 20.7661 | 391.636 | 4769.2 | 6080.9 | 142.083 | 39.72 | 69.19 | 980 |
| 150.000 | 22.338 | .04477 | 1.07685 | 18.6348 | 348.265 | 5433.2 | 6776.2 | 146.875 | 39.79 | 69.76 | 927 |
| 160.000 | 21.800 | .04587 | 1.03445 | 16.7338 | 309.759 | 6100.9 | 7477.0 | 151.399 | 40.01 | 70.44 | 876 |
| 170.000 | 21.257 | .04704 | .99846 | 15.0323 | 275.433 | 6773.2 | 8184.5 | 155.692 | 40.35 | 71.22 | 827 |
| 180.000 | 20.708 | .04829 | .96798 | 13.5049 | 244.748 | 7451.2 | 8899.9 | 159.786 | 40.75 | 72.03 | 780 |
| 190.000 | 20.153 | .04962 | .94229 | 12.1310 | 217.278 | 8135.4 | 9623.9 | 163.701 | 41.09 | 72.78 | 736 |
| 200.000 | 19.592 | .05104 | .92084 | 10.8932 | 192.685 | 8824.4 | 10355.7 | 167.449 | 41.23 | 73.32 | 694 |
| 210.000 | 19.023 | .05257 | .90323 | 9.7770 | 170.693 | 9514.0 | 11091.1 | 171.032 | 40.98 | 73.48 | 656 |
| 220.000 | 18.446 | .05421 | .88913 | 8.7701 | 151.078 | 10197.0 | 11823.4 | 174.446 | 40.31 | 73.22 | 621 |
| 230.000 | 17.862 | .05599 | .87829 | 7.8621 | 133.654 | 10878.5 | 12558.1 | 177.705 | 40.66 | 74.00 | 585 |
| 240.000 | 17.270 | .05791 | .87055 | 7.0440 | 118.260 | 11538.7 | 13275.9 | 180.757 | 44.36 | 78.12 | 541 |
| 250.000 | 16.671 | .05999 | .86576 | 6.3081 | 104.759 | 12260.0 | 14059.6 | 183.956 | 44.60 | 78.77 | 510 |
| 260.000 | 16.066 | .06224 | .86380 | 5.6476 | 93.030 | 12985.2 | 14852.6 | 187.067 | 45.31 | 79.85 | 480 |
| 270.000 | 15.457 | .06469 | .86455 | 5.0564 | 82.961 | 13715.9 | 15656.8 | 190.101 | 46.18 | 81.00 | 452 |
| 280.000 | 14.848 | .06735 | .86788 | 4.5293 | 74.448 | 14451.9 | 16472.4 | 193.068 | 47.10 | 82.09 | 427 |
| 290.000 | 14.242 | .07021 | .87361 | 4.0613 | 67.386 | 15191.6 | 17298.1 | 195.965 | 48.02 | 83.02 | 405 |
| 300.000 | 13.644 | .07329 | .88147 | 3.6478 | 61.668 | 15933.2 | 18131.9 | 198.791 | 48.94 | 83.71 | 385 |
| 310.000 | 13.061 | .07656 | .89115 | 3.2844 | 57.171 | 16674.4 | 18971.3 | 201.543 | 49.83 | 84.12 | 368 |
| 320.000 | 12.497 | .08002 | .90224 | 2.9668 | 53.758 | 17412.7 | 19813.3 | 204.216 | 50.68 | 84.23 | 354 |
| 330.000 | 11.959 | .08362 | .91430 | 2.6904 | 51.280 | 18146.3 | 20655.0 | 206.807 | 51.50 | 84.07 | 343 |
| 340.000 | 11.449 | .08734 | .92691 | 2.4505 | 49.581 | 18873.6 | 21493.9 | 209.311 | 52.28 | 83.69 | 334 |
| 350.000 | 10.971 | .09115 | .93968 | 2.2426 | 48.514 | 19593.7 | 22328.3 | 211.730 | 53.02 | 83.17 | 327 |
| 360.000 | 10.525 | .09502 | .95231 | 2.0623 | 47.942 | 20306.5 | 23157.0 | 214.065 | 53.73 | 82.56 | 322 |
| 370.000 | 10.110 | .09891 | .96456 | 1.9056 | 47.750 | 21012.2 | 23979.5 | 216.318 | 54.41 | 81.94 | 318 |
| 380.000 | 9.726 | .10282 | .97628 | 1.7689 | 47.843 | 21711.3 | 24795.9 | 218.495 | 55.07 | 81.34 | 315 |
| 390.000 | 9.370 | .10672 | .98738 | 1.6491 | 48.148 | 22404.7 | 25606.5 | 220.601 | 55.69 | 80.78 | 313 |
| 400.000 | 9.040 | .11062 | .99783 | 1.5436 | 48.607 | 23093.2 | 26411.8 | 222.640 | 56.29 | 80.29 | 312 |
| 410.000 | 8.734 | .11450 | 1.00760 | 1.4502 | 49.178 | 23777.6 | 27212.5 | 224.617 | 56.87 | 79.86 | 311 |
| 420.000 | 8.450 | .11835 | 1.01672 | 1.3671 | 49.830 | 24458.7 | 28009.2 | 226.537 | 57.43 | 79.49 | 311 |
| 430.000 | 8.185 | .12218 | 1.02522 | 1.2927 | 50.538 | 25137.1 | 28802.5 | 228.404 | 57.96 | 79.19 | 311 |
| 440.000 | 7.937 | .12599 | 1.03313 | 1.2258 | 51.286 | 25813.6 | 29593.2 | 230.221 | 58.48 | 78.94 | 312 |
| 450.000 | 7.706 | .12977 | 1.04050 | 1.1654 | 52.057 | 26488.5 | 30381.6 | 231.993 | 58.98 | 78.75 | 312 |
| 460.000 | 7.489 | .13353 | 1.04736 | 1.1105 | 52.849 | 27162.4 | 31168.2 | 233.722 | 59.45 | 78.59 | 313 |
| 470.000 | 7.285 | .13726 | 1.05375 | 1.0606 | 53.665 | 27835.7 | 31953.5 | 235.411 | 59.91 | 78.47 | 314 |
| 480.000 | 7.094 | .14097 | 1.05970 | 1.0149 | 54.507 | 28508.5 | 32737.7 | 237.062 | 60.35 | 78.38 | 315 |
| 490.000 | 6.913 | .14466 | 1.06523 | .9730 | 55.377 | 29181.3 | 33521.2 | 238.677 | 60.76 | 78.31 | 316 |
| 500.000 | 6.742 | .14833 | 1.07037 | .9344 | 56.272 | 29854.2 | 34304.0 | 240.259 | 61.19 | 78.26 | 318 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 350 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 72.670 | 26.387 | .03790 | 2.19524 | 46.3276 | 945.789 | 278.6 | 1605.0 | 96.493 | 47.50 | 71.18 | 1412 |
| 80.000 | 26.027 | .03842 | 2.02170 | 42.1523 | 854.410 | 777.5 | 2122.2 | 103.264 | 45.24 | 69.80 | 1362 |
| 90.000 | 25.531 | .03917 | 1.83195 | 37.2710 | 748.635 | 1443.8 | 2814.7 | 111.414 | 43.07 | 68.69 | 1296 |
| 100.000 | 25.032 | .03995 | 1.68169 | 33.1243 | 659.843 | 2100.1 | 3498.3 | 118.621 | 41.64 | 68.18 | 1233 |
| 110.000 | 24.528 | .04077 | 1.56022 | 29.5540 | 584.277 | 2751.6 | 4178.5 | 125.111 | 40.72 | 68.05 | 1172 |
| 120.000 | 24.020 | .04163 | 1.46042 | 26.4479 | 519.233 | 3402.0 | 4859.2 | 131.035 | 40.14 | 68.16 | 1114 |
| 130.000 | 23.509 | .04254 | 1.37739 | 23.7237 | 462.709 | 4053.6 | 5542.4 | 136.500 | 39.82 | 68.43 | 1058 |
| 140.000 | 22.995 | .04349 | 1.30761 | 21.3186 | 413.189 | 4707.3 | 6229.4 | 141.585 | 39.70 | 68.82 | 1004 |
| 150.000 | 22.477 | .04449 | 1.24854 | 19.1840 | 369.511 | 5363.4 | 6920.6 | 146.350 | 39.76 | 69.33 | 952 |
| 160.000 | 21.956 | .04555 | 1.19827 | 17.2813 | 330.772 | 6022.7 | 7616.8 | 150.844 | 39.97 | 69.94 | 902 |
| 170.000 | 21.432 | .04666 | 1.15536 | 15.5794 | 296.266 | 6685.8 | 8318.8 | 155.104 | 40.31 | 70.63 | 855 |
| 180.000 | 20.904 | .04784 | 1.11872 | 14.0529 | 265.439 | 7353.6 | 9027.9 | 159.162 | 40.70 | 71.34 | 809 |
| 190.000 | 20.373 | .04908 | 1.08748 | 12.6805 | 237.846 | 8026.5 | 9744.5 | 163.037 | 41.03 | 71.98 | 766 |
| 200.000 | 19.838 | .05041 | 1.06097 | 11.4448 | 213.133 | 8703.3 | 10467.6 | 166.741 | 41.16 | 72.39 | 726 |
| 210.000 | 19.299 | .05182 | 1.03866 | 10.3308 | 191.011 | 9379.4 | 11192.9 | 170.275 | 40.89 | 72.40 | 690 |
| 220.000 | 18.756 | .05331 | 1.02014 | 9.3261 | 171.238 | 10047.5 | 11913.5 | 173.634 | 40.21 | 71.97 | 657 |
| 230.000 | 18.210 | .05491 | 1.00506 | 8.4198 | 153.615 | 10712.7 | 12634.8 | 176.833 | 40.54 | 72.55 | 622 |
| 240.000 | 17.660 | .05662 | .99316 | 7.6026 | 137.967 | 11355.1 | 13337.0 | 179.819 | 44.23 | 76.46 | 579 |
| 250.000 | 17.108 | .05845 | .98421 | 6.8664 | 124.144 | 12057.2 | 14103.0 | 182.946 | 44.46 | 76.90 | 549 |
| 260.000 | 16.555 | .06041 | .97800 | 6.2039 | 112.011 | 12761.9 | 14876.1 | 185.979 | 45.15 | 77.75 | 521 |
| 270.000 | 16.001 | .06250 | .97436 | 5.6087 | 101.446 | 13471.0 | 15658.4 | 188.930 | 46.01 | 78.71 | 494 |
| 280.000 | 15.450 | .06473 | .97309 | 5.0750 | 92.337 | 14184.8 | 16450.2 | 191.810 | 46.92 | 79.64 | 469 |
| 290.000 | 14.903 | .06710 | .97402 | 4.5977 | 84.577 | 14902.4 | 17250.9 | 194.620 | 47.85 | 80.49 | 447 |
| 300.000 | 14.363 | .06962 | .97690 | 4.1719 | 78.063 | 15622.7 | 18059.4 | 197.360 | 48.77 | 81.20 | 427 |
| 310.000 | 13.835 | .07228 | .98150 | 3.7932 | 72.688 | 16344.4 | 18874.2 | 200.032 | 49.67 | 81.73 | 410 |
| 320.000 | 13.321 | .07507 | .98752 | 3.4573 | 68.345 | 17066.0 | 19693.5 | 202.633 | 50.55 | 82.08 | 395 |
| 330.000 | 12.824 | .07798 | .99468 | 3.1602 | 64.920 | 17786.1 | 20515.3 | 205.162 | 51.38 | 82.25 | 382 |
| 340.000 | 12.348 | .08098 | 1.00265 | 2.8980 | 62.296 | 18503.5 | 21338.0 | 207.617 | 52.19 | 82.25 | 371 |
| 350.000 | 11.895 | .08407 | 1.01115 | 2.6668 | 60.359 | 19217.3 | 22159.8 | 210.000 | 52.96 | 82.10 | 363 |
| 360.000 | 11.465 | .08722 | 1.01991 | 2.4631 | 58.997 | 19926.9 | 22979.7 | 212.310 | 53.69 | 81.86 | 355 |
| 370.000 | 11.060 | .09042 | 1.02870 | 2.2835 | 58.107 | 20632.1 | 23796.8 | 214.549 | 54.40 | 81.54 | 350 |
| 380.000 | 10.679 | .09364 | 1.03736 | 2.1249 | 57.600 | 21332.9 | 24610.4 | 216.719 | 55.07 | 81.19 | 345 |
| 390.000 | 10.322 | .09689 | 1.04574 | 1.9845 | 57.396 | 22029.6 | 25420.6 | 218.823 | 55.71 | 80.83 | 342 |
| 400.000 | 9.987 | .10013 | 1.05377 | 1.8598 | 57.432 | 22722.5 | 26227.1 | 220.865 | 56.33 | 80.49 | 339 |
| 410.000 | 9.673 | .10338 | 1.06138 | 1.7486 | 57.655 | 23412.2 | 27030.4 | 222.848 | 56.93 | 80.16 | 338 |
| 420.000 | 9.380 | .10661 | 1.06854 | 1.6492 | 58.022 | 24099.1 | 27830.5 | 224.776 | 57.49 | 79.87 | 336 |
| 430.000 | 9.104 | .10984 | 1.07526 | 1.5599 | 58.500 | 24783.7 | 28627.9 | 226.653 | 58.04 | 79.62 | 336 |
| 440.000 | 8.846 | .11305 | 1.08152 | 1.4793 | 59.063 | 25466.4 | 29423.0 | 228.481 | 58.56 | 79.40 | 335 |
| 450.000 | 8.603 | .11624 | 1.08735 | 1.4064 | 59.691 | 26147.7 | 30216.0 | 230.262 | 59.07 | 79.22 | 335 |
| 460.000 | 8.374 | .11941 | 1.09276 | 1.3401 | 60.368 | 26828.0 | 31007.4 | 232.002 | 59.55 | 79.07 | 335 |
| 470.000 | 8.159 | .12257 | 1.09778 | 1.2796 | 61.082 | 27507.6 | 31797.5 | 233.701 | 60.02 | 78.95 | 336 |
| 480.000 | 7.955 | .12571 | 1.10243 | 1.2243 | 61.822 | 28186.7 | 32586.4 | 235.362 | 60.46 | 78.85 | 336 |
| 490.000 | 7.762 | .12883 | 1.10674 | 1.1734 | 62.580 | 28865.7 | 33374.6 | 236.987 | 60.89 | 78.79 | 337 |
| 500.000 | 7.580 | .13193 | 1.11073 | 1.1266 | 63.351 | 29544.7 | 34162.2 | 238.579 | 61.31 | 78.74 | 338 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 400 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 73.534 | 26.398 | .03788 | 2.47836 | 46.4538 | 962.033 | 315.2 | 1830.4 | 96.984 | 47.20 | 70.87 | 1426 |
| 80.000 | 26.085 | .03834 | 2.30541 | 42.7795 | 880.967 | 751.8 | 2285.3 | 102.903 | 45.24 | 69.67 | 1382 |
| 90.000 | 25.597 | .03907 | 2.08828 | 37.8711 | 773.724 | 1413.6 | 2976.3 | 111.036 | 43.07 | 68.53 | 1316 |
| 100.000 | 25.106 | .03983 | 1.91623 | 33.7040 | 683.791 | 2065.0 | 3658.2 | 118.225 | 41.64 | 68.00 | 1254 |
| 110.000 | 24.612 | .04063 | 1.77702 | 30.1183 | 607.329 | 2711.2 | 4336.4 | 124.696 | 40.71 | 67.83 | 1193 |
| 120.000 | 24.114 | .04147 | 1.66253 | 27.0006 | 541.578 | 3356.0 | 5014.7 | 130.600 | 40.13 | 67.91 | 1136 |
| 130.000 | 23.615 | .04235 | 1.56712 | 24.2674 | 484.494 | 4001.4 | 5695.2 | 136.044 | 39.80 | 68.14 | 1080 |
| 140.000 | 23.113 | .04327 | 1.48678 | 21.8556 | 434.532 | 4648.4 | 6379.1 | 141.106 | 39.68 | 68.49 | 1027 |
| 150.000 | 22.609 | .04423 | 1.41860 | 19.7161 | 390.504 | 5297.6 | 7066.8 | 145.847 | 39.74 | 68.95 | 976 |
| 160.000 | 22.103 | .04524 | 1.36037 | 17.8099 | 351.487 | 5949.2 | 7758.9 | 150.314 | 39.95 | 69.50 | 928 |
| 170.000 | 21.595 | .04631 | 1.31044 | 16.1055 | 316.758 | 6604.0 | 8456.3 | 154.546 | 40.27 | 70.13 | 881 |
| 180.000 | 21.086 | .04742 | 1.26753 | 14.5773 | 285.742 | 7262.9 | 9159.9 | 158.572 | 40.66 | 70.76 | 836 |
| 190.000 | 20.575 | .04860 | 1.23064 | 13.2039 | 257.982 | 7926.2 | 9870.3 | 162.414 | 40.98 | 71.32 | 795 |
| 200.000 | 20.062 | .04984 | 1.19898 | 11.9675 | 233.109 | 8592.6 | 10586.3 | 166.081 | 41.10 | 71.63 | 756 |
| 210.000 | 19.548 | .05116 | 1.17192 | 10.8529 | 210.820 | 9257.3 | 11303.6 | 169.576 | 40.83 | 71.53 | 721 |
| 220.000 | 19.033 | .05254 | 1.14894 | 9.8474 | 190.863 | 9913.2 | 12014.9 | 172.892 | 40.13 | 70.99 | 689 |
| 230.000 | 18.516 | .05401 | 1.12963 | 8.9398 | 173.026 | 10565.4 | 12725.7 | 176.045 | 40.45 | 71.44 | 656 |
| 240.000 | 18.000 | .05556 | 1.11365 | 8.1207 | 157.125 | 11193.8 | 13416.1 | 178.981 | 44.13 | 75.22 | 614 |
| 250.000 | 17.483 | .05720 | 1.10069 | 7.3815 | 143.001 | 11881.1 | 14169.0 | 182.054 | 44.35 | 75.51 | 585 |
| 260.000 | 16.968 | .05894 | 1.09051 | 6.7148 | 130.513 | 12570.2 | 14927.6 | 185.030 | 45.04 | 76.24 | 557 |
| 270.000 | 16.455 | .06077 | 1.08287 | 6.1141 | 119.531 | 13263.2 | 15694.1 | 187.922 | 45.89 | 77.07 | 531 |
| 280.000 | 15.945 | .06271 | 1.07755 | 5.5733 | 109.939 | 13960.5 | 16469.1 | 190.741 | 46.80 | 77.91 | 507 |
| 290.000 | 15.441 | .06476 | 1.07434 | 5.0871 | 101.630 | 14661.7 | 17252.2 | 193.488 | 47.73 | 78.70 | 485 |
| 300.000 | 14.945 | .06691 | 1.07304 | 4.6506 | 94.500 | 15366.2 | 18042.7 | 196.168 | 48.65 | 79.40 | 466 |
| 310.000 | 14.458 | .06917 | 1.07340 | 4.2593 | 88.451 | 16073.0 | 18839.7 | 198.781 | 49.56 | 79.98 | 448 |
| 320.000 | 13.982 | .07152 | 1.07521 | 3.9091 | 83.388 | 16781.1 | 19641.9 | 201.327 | 50.44 | 80.44 | 432 |
| 330.000 | 13.521 | .07396 | 1.07822 | 3.5961 | 79.214 | 17489.6 | 20448.0 | 203.808 | 51.29 | 80.76 | 419 |
| 340.000 | 13.075 | .07648 | 1.08219 | 3.3167 | 75.834 | 18197.5 | 21256.7 | 206.222 | 52.11 | 80.96 | 407 |
| 350.000 | 12.647 | .07907 | 1.08688 | 3.0675 | 73.153 | 18903.9 | 22066.8 | 208.571 | 52.90 | 81.05 | 397 |
| 360.000 | 12.237 | .08172 | 1.09209 | 2.8454 | 71.081 | 19608.5 | 22877.3 | 210.854 | 53.65 | 81.03 | 388 |
| 370.000 | 11.846 | .08442 | 1.09760 | 2.6473 | 69.528 | 20310.7 | 23687.3 | 213.073 | 54.37 | 80.94 | 381 |
| 380.000 | 11.475 | .08714 | 1.10326 | 2.4705 | 68.417 | 21010.2 | 24496.0 | 215.230 | 55.06 | 80.80 | 376 |
| 390.000 | 11.124 | .08990 | 1.10893 | 2.3124 | 67.672 | 21707.3 | 25303.2 | 217.326 | 55.72 | 80.62 | 371 |
| 400.000 | 10.792 | .09266 | 1.11449 | 2.1709 | 67.231 | 22401.8 | 26108.4 | 219.365 | 56.35 | 80.43 | 367 |
| 410.000 | 10.478 | .09544 | 1.11988 | 2.0439 | 67.039 | 23094.1 | 26911.7 | 221.349 | 56.95 | 80.23 | 364 |
| 420.000 | 10.182 | .09822 | 1.12502 | 1.9295 | 67.049 | 23784.3 | 27713.0 | 223.280 | 57.53 | 80.03 | 362 |
| 430.000 | 9.902 | .10099 | 1.12989 | 1.8263 | 67.222 | 24472.7 | 28512.4 | 225.161 | 58.09 | 79.85 | 360 |
| 440.000 | 9.638 | .10376 | 1.13447 | 1.7328 | 67.526 | 25159.7 | 29310.0 | 226.995 | 58.62 | 79.69 | 359 |
| 450.000 | 9.388 | .10652 | 1.13874 | 1.6479 | 67.935 | 25845.6 | 30106.2 | 228.783 | 59.13 | 79.54 | 358 |
| 460.000 | 9.152 | .10926 | 1.14270 | 1.5706 | 68.428 | 26530.5 | 30901.0 | 230.530 | 59.62 | 79.42 | 358 |
| 470.000 | 8.929 | .11199 | 1.14637 | 1.4998 | 68.988 | 27214.9 | 31694.7 | 232.237 | 60.09 | 79.32 | 358 |
| 480.000 | 8.717 | .11471 | 1.14975 | 1.4350 | 69.600 | 27898.8 | 32487.4 | 233.906 | 60.55 | 79.23 | 358 |
| 490.000 | 8.516 | .11742 | 1.15285 | 1.3753 | 70.255 | 28582.6 | 33279.4 | 235.540 | 60.98 | 79.17 | 358 |
| 500.000 | 8.325 | .12011 | 1.15570 | 1.3203 | 70.942 | 29266.3 | 34070.9 | 237.139 | 61.40 | 79.12 | 358 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 450 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 74.391 | 26.408 | .03787 | 2.75497 | 46.5795 | 978.305 | 351.0 | 2055.0 | 97.459 | 46.91 | 70.57 | 1439 |
| 80.000 | 26.141 | .03825 | 2.58803 | 43.3985 | 907.553 | 727.0 | 2448.5 | 102.550 | 45.25 | 69.54 | 1401 |
| 90.000 | 25.661 | .03897 | 2.34350 | 38.4623 | 798.805 | 1384.5 | 3138.1 | 110.667 | 43.07 | 68.38 | 1336 |
| 100.000 | 25.178 | .03972 | 2.14960 | 34.2741 | 707.697 | 2031.2 | 3818.4 | 117.839 | 41.64 | 67.82 | 1274 |
| 110.000 | 24.692 | .04050 | 1.99261 | 30.6722 | 630.305 | 2672.3 | 4494.8 | 124.292 | 40.71 | 67.64 | 1214 |
| 120.000 | 24.205 | .04131 | 1.86335 | 27.5418 | 563.812 | 3311.8 | 5170.9 | 130.178 | 40.12 | 67.68 | 1157 |
| 130.000 | 23.715 | .04217 | 1.75550 | 24.7987 | 506.134 | 3951.5 | 5849.0 | 135.602 | 39.80 | 67.88 | 1102 |
| 140.000 | 23.225 | .04306 | 1.66454 | 22.3789 | 455.694 | 4592.5 | 6530.1 | 140.643 | 39.67 | 68.19 | 1050 |
| 150.000 | 22.733 | .04399 | 1.58716 | 20.2331 | 411.281 | 5235.2 | 7214.7 | 145.362 | 39.72 | 68.61 | 1000 |
| 160.000 | 22.241 | .04496 | 1.52090 | 18.3218 | 371.949 | 5879.9 | 7903.2 | 149.806 | 39.93 | 69.12 | 952 |
| 170.000 | 21.748 | .04598 | 1.46387 | 16.6133 | 336.958 | 6527.2 | 8596.4 | 154.013 | 40.25 | 69.69 | 906 |
| 180.000 | 21.255 | .04705 | 1.41463 | 15.0817 | 305.718 | 7178.2 | 9295.3 | 158.013 | 40.63 | 70.27 | 862 |
| 190.000 | 20.762 | .04817 | 1.37202 | 13.7054 | 277.757 | 7833.1 | 10000.5 | 161.826 | 40.95 | 70.75 | 822 |
| 200.000 | 20.268 | .04934 | 1.33515 | 12.4662 | 252.693 | 8490.3 | 10710.6 | 165.463 | 41.05 | 71.00 | 784 |
| 210.000 | 19.775 | .05057 | 1.30328 | 11.3490 | 230.211 | 9145.4 | 11421.0 | 168.924 | 40.78 | 70.82 | 750 |
| 220.000 | 19.282 | .05186 | 1.27583 | 10.3407 | 210.050 | 9791.1 | 12124.9 | 172.206 | 40.07 | 70.19 | 719 |
| 230.000 | 18.791 | .05322 | 1.25230 | 9.4299 | 191.989 | 10432.5 | 12827.3 | 175.321 | 40.39 | 70.56 | 687 |
| 240.000 | 18.300 | .05464 | 1.23228 | 8.6070 | 175.837 | 11049.5 | 13508.4 | 178.218 | 44.05 | 74.25 | 646 |
| 250.000 | 17.812 | .05614 | 1.21542 | 7.8632 | 161.428 | 11724.8 | 14251.2 | 181.250 | 44.27 | 74.45 | 618 |
| 260.000 | 17.326 | .05772 | 1.20142 | 7.1912 | 148.616 | 12401.5 | 14998.7 | 184.182 | 44.95 | 75.09 | 591 |
| 270.000 | 16.844 | .05937 | 1.19002 | 6.5840 | 137.267 | 13081.9 | 15753.4 | 187.029 | 45.80 | 75.85 | 565 |
| 280.000 | 16.367 | .06110 | 1.18097 | 6.0357 | 127.263 | 13766.4 | 16515.8 | 189.802 | 46.71 | 76.63 | 542 |
| 290.000 | 15.896 | .06291 | 1.17403 | 5.5409 | 118.495 | 14454.9 | 17285.8 | 192.504 | 47.64 | 77.37 | 520 |
| 300.000 | 15.433 | .06480 | 1.16900 | 5.0945 | 110.862 | 15147.0 | 18062.9 | 195.138 | 48.56 | 78.05 | 500 |
| 310.000 | 14.978 | .06677 | 1.16565 | 4.6922 | 104.268 | 15842.1 | 18846.5 | 197.707 | 49.48 | 78.65 | 483 |
| 320.000 | 14.533 | .06881 | 1.16377 | 4.3298 | 98.623 | 16539.3 | 19635.7 | 200.212 | 50.36 | 79.16 | 467 |
| 330.000 | 14.100 | .07092 | 1.16316 | 4.0036 | 93.842 | 17238.0 | 20429.4 | 202.655 | 51.22 | 79.57 | 453 |
| 340.000 | 13.680 | .07310 | 1.16360 | 3.7102 | 89.838 | 17937.4 | 21226.8 | 205.035 | 52.05 | 79.89 | 440 |
| 350.000 | 13.275 | .07533 | 1.16490 | 3.4463 | 86.532 | 18636.9 | 22026.9 | 207.355 | 52.85 | 80.11 | 429 |
| 360.000 | 12.884 | .07762 | 1.16687 | 3.2090 | 83.844 | 19336.0 | 22828.7 | 209.614 | 53.61 | 80.25 | 420 |
| 370.000 | 12.509 | .07994 | 1.16934 | 2.9956 | 81.699 | 20034.3 | 23631.6 | 211.813 | 54.34 | 80.31 | 412 |
| 380.000 | 12.151 | .08230 | 1.17217 | 2.8035 | 80.027 | 20731.3 | 24434.8 | 213.955 | 55.04 | 80.32 | 405 |
| 390.000 | 11.809 | .08468 | 1.17520 | 2.6305 | 78.761 | 21427.1 | 25237.8 | 216.041 | 55.71 | 80.29 | 399 |
| 400.000 | 11.483 | .08709 | 1.17834 | 2.4744 | 77.842 | 22121.4 | 26040.4 | 218.073 | 56.36 | 80.22 | 395 |
| 410.000 | 11.173 | .08950 | 1.18150 | 2.3334 | 77.217 | 22814.5 | 26842.1 | 220.053 | 56.97 | 80.13 | 391 |
| 420.000 | 10.878 | .09193 | 1.18460 | 2.2057 | 76.840 | 23506.2 | 27642.9 | 221.983 | 57.56 | 80.03 | 387 |
| 430.000 | 10.598 | .09435 | 1.18759 | 2.0898 | 76.669 | 24196.8 | 28442.7 | 223.865 | 58.12 | 79.93 | 385 |
| 440.000 | 10.333 | .09678 | 1.19044 | 1.9844 | 76.671 | 24886.5 | 29241.5 | 225.701 | 58.66 | 79.83 | 383 |
| 450.000 | 10.081 | .09920 | 1.19311 | 1.8883 | 76.815 | 25575.3 | 30039.4 | 227.494 | 59.18 | 79.74 | 381 |
| 460.000 | 9.841 | .10162 | 1.19559 | 1.8004 | 77.077 | 26263.6 | 30836.4 | 229.245 | 59.68 | 79.65 | 380 |
| 470.000 | 9.613 | .10402 | 1.19788 | 1.7199 | 77.436 | 26951.4 | 31632.5 | 230.958 | 60.15 | 79.58 | 379 |
| 480.000 | 9.396 | .10642 | 1.19997 | 1.6459 | 77.874 | 27639.0 | 32428.1 | 232.633 | 60.61 | 79.52 | 379 |
| 490.000 | 9.190 | .10881 | 1.20187 | 1.5777 | 78.379 | 28326.5 | 33223.0 | 234.272 | 61.05 | 79.47 | 379 |
| 500.000 | 8.994 | .11119 | 1.20357 | 1.5147 | 78.936 | 29014.0 | 34017.6 | 235.877 | 61.47 | 79.44 | 379 |

Table 15. Continued.

NITROGEN TRIFLUORIDE ISOBAR AT 500 BAR

| T | DEN | VOL | Z | DP/DT | DP/DD | E | H | S | CV | CP | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| K | MOL/L | L/MOL | | BAR/K | BAR-L/MOL | J/MOL | J/MOL | J/MOL/K | J/MOL/K | J/MOL/K | M/SEC |
| 75.239 | 26.419 | .03785 | 3.02536 | 46.7047 | 994.604 | 386.2 | 2278.8 | 97.918 | 46.64 | 70.28 | 1452 |
| 80.000 | 26.195 | .03818 | 2.86963 | 44.0098 | 934.178 | 703.1 | 2611.8 | 102.204 | 45.25 | 69.42 | 1420 |
| 90.000 | 25.722 | .03888 | 2.59765 | 39.0451 | 823.887 | 1356.3 | 3300.2 | 110.305 | 43.07 | 68.24 | 1355 |
| 100.000 | 25.247 | .03961 | 2.38187 | 34.8353 | 731.572 | 1998.5 | 3979.0 | 117.461 | 41.64 | 67.66 | 1293 |
| 110.000 | 24.770 | .04037 | 2.20704 | 31.2164 | 653.219 | 2635.0 | 4653.6 | 123.898 | 40.71 | 67.45 | 1234 |
| 120.000 | 24.292 | .04117 | 2.06298 | 28.0725 | 585.953 | 3269.4 | 5327.8 | 129.766 | 40.12 | 67.47 | 1178 |
| 130.000 | 23.812 | .04200 | 1.94263 | 25.3184 | 527.650 | 3903.9 | 6003.6 | 135.173 | 39.79 | 67.64 | 1123 |
| 140.000 | 23.332 | .04286 | 1.84099 | 22.8898 | 476.702 | 4539.2 | 6682.2 | 140.195 | 39.66 | 67.93 | 1072 |
| 150.000 | 22.852 | .04376 | 1.75436 | 20.7365 | 431.871 | 5175.9 | 7363.9 | 144.894 | 39.71 | 68.31 | 1022 |
| 160.000 | 22.372 | .04470 | 1.68000 | 18.8189 | 392.194 | 5814.2 | 8049.2 | 149.317 | 39.91 | 68.78 | 975 |
| 170.000 | 21.892 | .04568 | 1.61581 | 17.1051 | 356.910 | 6454.9 | 8738.7 | 153.503 | 40.23 | 69.31 | 930 |
| 180.000 | 21.414 | .04670 | 1.56017 | 15.5687 | 325.416 | 7098.7 | 9433.7 | 157.479 | 40.60 | 69.84 | 887 |
| 190.000 | 20.936 | .04777 | 1.51180 | 14.1880 | 297.226 | 7746.0 | 10134.3 | 161.268 | 40.92 | 70.27 | 847 |
| 200.000 | 20.459 | .04888 | 1.46967 | 12.9447 | 271.946 | 8395.4 | 10839.3 | 164.878 | 41.02 | 70.46 | 811 |
| 210.000 | 19.984 | .05004 | 1.43297 | 11.8234 | 249.252 | 9042.1 | 11544.1 | 168.313 | 40.74 | 70.23 | 777 |
| 220.000 | 19.510 | .05125 | 1.40103 | 10.8108 | 228.874 | 9679.0 | 12241.7 | 171.565 | 40.03 | 69.54 | 748 |
| 230.000 | 19.039 | .05252 | 1.37328 | 9.8955 | 210.581 | 10311.1 | 12937.2 | 174.650 | 40.33 | 69.84 | 716 |
| 240.000 | 18.571 | .05385 | 1.34926 | 9.0675 | 194.179 | 10918.5 | 13610.9 | 177.515 | 44.00 | 73.46 | 675 |
| 250.000 | 18.105 | .05523 | 1.32857 | 8.3183 | 179.496 | 11583.9 | 14345.5 | 180.513 | 44.21 | 73.61 | 648 |
| 260.000 | 17.644 | .05668 | 1.31088 | 7.6400 | 166.381 | 12250.5 | 15084.4 | 183.411 | 44.89 | 74.19 | 622 |
| 270.000 | 17.187 | .05818 | 1.29587 | 7.0260 | 154.700 | 12920.6 | 15829.7 | 186.224 | 45.73 | 74.90 | 597 |
| 280.000 | 16.736 | .05975 | 1.28329 | 6.4700 | 144.332 | 13594.8 | 16582.3 | 188.961 | 46.64 | 75.63 | 574 |
| 290.000 | 16.291 | .06138 | 1.27287 | 5.9666 | 135.166 | 14273.1 | 17342.2 | 191.628 | 47.57 | 76.35 | 552 |
| 300.000 | 15.854 | .06308 | 1.26441 | 5.5110 | 127.103 | 14955.2 | 18109.1 | 194.227 | 48.50 | 77.02 | 533 |
| 310.000 | 15.424 | .06483 | 1.25767 | 5.0985 | 120.049 | 15640.7 | 18882.3 | 196.762 | 49.41 | 77.63 | 515 |
| 320.000 | 15.004 | .06665 | 1.25246 | 4.7253 | 113.918 | 16329.0 | 19661.3 | 199.235 | 50.30 | 78.16 | 499 |
| 330.000 | 14.595 | .06852 | 1.24858 | 4.3876 | 108.627 | 17019.5 | 20445.3 | 201.648 | 51.17 | 78.62 | 484 |
| 340.000 | 14.197 | .07044 | 1.24584 | 4.0821 | 104.100 | 17711.6 | 21233.5 | 204.000 | 52.00 | 79.00 | 471 |
| 350.000 | 13.811 | .07241 | 1.24406 | 3.8056 | 100.263 | 18404.9 | 22025.2 | 206.295 | 52.80 | 79.31 | 460 |
| 360.000 | 13.438 | .07442 | 1.24307 | 3.5555 | 97.045 | 19098.7 | 22819.5 | 208.533 | 53.58 | 79.55 | 450 |
| 370.000 | 13.078 | .07646 | 1.24273 | 3.3290 | 94.379 | 19792.8 | 23615.9 | 210.715 | 54.32 | 79.72 | 441 |
| 380.000 | 12.733 | .07854 | 1.24289 | 3.1239 | 92.202 | 20486.8 | 24413.7 | 212.843 | 55.03 | 79.84 | 434 |
| 390.000 | 12.401 | .08064 | 1.24342 | 2.9379 | 90.455 | 21180.4 | 25212.4 | 214.917 | 55.71 | 79.91 | 427 |
| 400.000 | 12.083 | .08276 | 1.24422 | 2.7691 | 89.084 | 21873.7 | 26011.7 | 216.941 | 56.36 | 79.94 | 421 |
| 410.000 | 11.779 | .08490 | 1.24520 | 2.6157 | 88.038 | 22566.3 | 26811.2 | 218.915 | 56.98 | 79.95 | 417 |
| 420.000 | 11.489 | .08704 | 1.24627 | 2.4761 | 87.273 | 23258.5 | 27610.6 | 220.841 | 57.58 | 79.93 | 413 |
| 430.000 | 11.211 | .08919 | 1.24739 | 2.3488 | 86.748 | 23950.1 | 28409.8 | 222.722 | 58.15 | 79.91 | 409 |
| 440.000 | 10.947 | .09135 | 1.24849 | 2.2325 | 86.428 | 24641.2 | 29208.7 | 224.559 | 58.70 | 79.87 | 406 |
| 450.000 | 10.695 | .09350 | 1.24955 | 2.1260 | 86.284 | 25331.9 | 30007.2 | 226.353 | 59.22 | 79.83 | 404 |
| 460.000 | 10.454 | .09566 | 1.25053 | 2.0284 | 86.287 | 26022.4 | 30805.3 | 228.107 | 59.72 | 79.79 | 402 |
| 470.000 | 10.224 | .09781 | 1.25141 | 1.9386 | 86.415 | 26712.8 | 31603.0 | 229.823 | 60.20 | 79.76 | 401 |
| 480.000 | 10.005 | .09995 | 1.25219 | 1.8559 | 86.649 | 27403.0 | 32400.4 | 231.501 | 60.66 | 79.72 | 400 |
| 490.000 | 9.796 | .10208 | 1.25285 | 1.7796 | 86.972 | 28093.3 | 33197.6 | 233.145 | 61.10 | 79.70 | 399 |
| 500.000 | 9.596 | .10421 | 1.25339 | 1.7089 | 87.369 | 28783.8 | 33994.4 | 234.755 | 61.53 | 79.68 | 399 |

Table 15. Continued.

Table 16. List of Coefficients for the BWR Equation.

| | | |
|---|---|---|
| G( 1) | = | .1751151116E-01 |
| G( 2) | = | -.5338642406E+00 |
| G( 3) | = | .3924633078E+01 |
| G( 4) | = | -.5141353757E+03 |
| G( 5) | = | -.3243348520E+05 |
| G( 6) | = | -.5912181013E-03 |
| G( 7) | = | .9096990477E+00 |
| G( 8) | = | -.4785568295E+03 |
| G( 9) | = | -.4180501052E+07 |
| G(10) | = | -.9695778991E-05 |
| G(11) | = | .5361200088E-01 |
| G(12) | = | -.1443265236E+02 |
| G(13) | = | -.3322161796E-02 |
| G(14) | = | .2764741771E+00 |
| G(15) | = | .8324982578E+01 |
| G(16) | = | -.1307102346E-01 |
| G(17) | = | .1851077593E-03 |
| G(18) | = | .2920941516E+00 |
| G(19) | = | -.6918309272E-02 |
| G(20) | = | .4308730236E+07 |
| G(21) | = | -.1096864087E+08 |
| G(22) | = | .2380327276E+05 |
| G(23) | = | .3137563559E+07 |
| G(24) | = | .6086206849E+02 |
| G(25) | = | .4205136659E+02 |
| G(26) | = | .1076337320E+00 |
| G(27) | = | -.3297262333E+02 |
| G(28) | = | .8485003350E-04 |
| G(29) | = | .1224321948E-02 |
| G(30) | = | .1269404637E-06 |
| G(31) | = | -.8824183840E-06 |
| G(32) | = | .3309207594E-04 |

Table 17. Comparison of Results From the Two Equations of State.

| PRESS | TEMP | DIFFERENCE IN | | | | |
|---|---|---|---|---|---|---|
| | | DENSITY | H | S | CV | CP |
| BAR | K | PCT | J/MOL | J/MOL-K | PCT | PCT |
| 1.0 | 70.0 | .011 | -.6 | .111 | -5.26 | -2.03 |
| 1.0 | 120.0 | .010 | 6.6 | .125 | 3.69 | .06 |
| 1.0 | 170.0 | -.150 | -15.7 | -.060 | 1.05 | 1.17 |
| 1.0 | 220.0 | -.201 | -3.0 | .008 | .30 | .26 |
| 1.0 | 240.0 | -.186 | -1.2 | .015 | .20 | .13 |
| 1.0 | 280.0 | -.139 | -.0 | .019 | .07 | .02 |
| 1.0 | 320.0 | -.102 | -.3 | .018 | .02 | -.02 |
| 1.0 | 350.0 | -.087 | -.7 | .016 | -.00 | -.04 |
| 10.0 | 70.0 | .006 | -.5 | .113 | -4.04 | -2.04 |
| 10.0 | 120.0 | .017 | 6.5 | .124 | 3.39 | .06 |
| 10.0 | 170.0 | .057 | -49.1 | -.241 | -1.62 | -1.77 |
| 10.0 | 220.0 | -.127 | -17.8 | -.109 | 2.45 | 2.39 |
| 10.0 | 240.0 | -.220 | .9 | -.028 | 1.51 | 1.37 |
| 10.0 | 280.0 | -.223 | 17.2 | .036 | .52 | .36 |
| 10.0 | 320.0 | -.204 | 20.4 | .045 | .11 | .00 |
| 10.0 | 350.0 | -.177 | 19.0 | .043 | -.05 | -.12 |
| 40.0 | 70.0 | .002 | -.1 | .118 | -.07 | -2.10 |
| 40.0 | 120.0 | .036 | 6.3 | .122 | 2.47 | .06 |
| 40.0 | 170.0 | .055 | -48.2 | -.235 | -2.05 | -1.79 |
| 40.0 | 220.0 | -.057 | -37.4 | -.205 | 4.49 | 1.98 |
| 40.0 | 240.0 | -.597 | 10.2 | .007 | 3.79 | .27 |
| 40.0 | 280.0 | .173 | 27.1 | .072 | 1.25 | .24 |
| 40.0 | 320.0 | .333 | 25.7 | .067 | -.01 | -.28 |
| 40.0 | 350.0 | .330 | 18.3 | .048 | -.43 | -.44 |
| 50.0 | 70.0 | .003 | .1 | .121 | 1.19 | -2.14 |
| 50.0 | 120.0 | .040 | 6.2 | .122 | 2.20 | .05 |
| 50.0 | 170.0 | .054 | -48.0 | -.234 | -2.16 | -1.80 |
| 50.0 | 220.0 | -.058 | -38.0 | -.208 | 4.03 | 2.30 |
| 50.0 | 240.0 | -.156 | -15.5 | -.107 | 1.76 | 4.34 |
| 50.0 | 280.0 | -.029 | 41.0 | .124 | 1.38 | -.13 |
| 50.0 | 320.0 | .330 | 31.0 | .090 | -.14 | -.53 |
| 50.0 | 350.0 | .386 | 19.3 | .057 | -.59 | -.63 |
| 100.0 | 70.0 | .017 | 1.5 | .141 | 7.11 | -2.41 |
| 100.0 | 120.0 | .057 | 5.7 | .119 | 1.03 | .04 |
| 100.0 | 170.0 | .058 | -47.4 | -.228 | -2.26 | -1.85 |
| 100.0 | 220.0 | -.095 | -42.1 | -.227 | 3.44 | 3.16 |
| 100.0 | 240.0 | -.069 | 34.4 | .109 | -2.18 | -1.68 |
| 100.0 | 280.0 | .097 | 34.3 | .085 | 1.50 | 4.56 |
| 100.0 | 320.0 | -.509 | 76.1 | .231 | -.77 | -.87 |
| 100.0 | 350.0 | -.206 | 48.0 | .151 | -1.45 | -1.38 |
| 200.0 | 120.0 | .064 | 5.3 | .117 | -.57 | .04 |
| 200.0 | 170.0 | .086 | -46.8 | -.223 | -1.40 | -1.95 |
| 200.0 | 220.0 | -.031 | -52.2 | -.276 | 5.45 | 3.37 |
| 200.0 | 240.0 | -.179 | 35.2 | .107 | -1.11 | -.11 |
| 200.0 | 280.0 | -.011 | 21.1 | .054 | -.37 | -1.14 |
| 200.0 | 320.0 | .230 | 3.8 | -.007 | -1.35 | .59 |
| 200.0 | 350.0 | -.330 | 23.6 | .057 | -1.95 | .59 |
| 300.0 | 120.0 | .050 | 5.0 | .117 | -1.41 | .09 |
| 300.0 | 170.0 | .135 | -45.8 | -.215 | .34 | -2.01 |
| 300.0 | 220.0 | .137 | -58.4 | -.303 | 8.76 | 3.28 |
| 300.0 | 240.0 | .053 | 26.3 | .068 | 2.02 | -.05 |
| 300.0 | 280.0 | -.050 | 34.6 | .101 | 2.16 | -.31 |
| 300.0 | 320.0 | .144 | 6.3 | .006 | .23 | -1.08 |
| 300.0 | 350.0 | .196 | -17.1 | -.060 | -.80 | -.73 |

```
      PROGRAM NF3THRM (INPUT,OUTPUT)
C     NITROGEN TRIFLUORIDE THERMOPHYSICAL PROPERTIES.
C     NEW XEF, DENGASF, EDELF, FOR LOW DENSITIES.
      COMMON GK,GKK, B1,B2,B3,B4,B5, C1,C2,C3, E1,E2,E3, ER,IX
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/2/ NFP, EPP, PJ(6)
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/4/XB1,XB2, XC1,XC2, XE1,XE2, DXBDR,DXCDR,DXEDR
      COMMON/5/ DDSDT
      COMMON/6/ TSAT, THETA, PSAT
      COMMON/7/ NFG,  GE, AV(6)
      COMMON/8/ IN,IK, P,T,DEN, E,H,S, CV,CP,CSAT, W,WK
      COMMON/9/ DNG,EG,HG,SG, CVG,CPG,WG, DPGDT,DPGDD
      COMMON/10/ NFL,  EL, AW(6)
      COMMON/12/ DELS, DELCV
      COMMON/13/ ZCRT,ZSAT,DZSDT, ZFX, FRT,DFRTDT
      COMMON/19/ KD
      COMMON/99/ TI,EZZ, EZ,SZ,CVZ, HZ,CPZ
      DIMENSION PP(99)
    1 FORMAT(I5, 2F10.0)
    2 FORMAT(I5, 3F10.0)
    3 FORMAT(8I10)
    5 FORMAT(1X)
    9 FORMAT(8F10.0)
   14 FORMAT(1H1 18X *NITROGEN TRIFLUORIDE ISOBAR AT *F8.5, 4H BAR / )
   15 FORMAT(1H1 18X *NITROGEN TRIFLUORIDE ISOBAR AT *  I3, 4H BAR / )
   16 FORMAT(19X 1HT 6X3HDEN 6X3HVOL 8X1HZ 5X5HDP/DT 5X5HDP/DD
     2 8X1HE 8X1HH 8X1HS 6X2HCV 6X2HCP 5X1HW /
     3 15X 5HDEG K 4X5HMOL/L 4X5HL/MOL 14X5HBAR/K 1X9HBAR-L/MOL
     4 4X5HJ/MOL 4X5HJ/MOL 2X7HJ/MOL/K 1X7HJ/MOL/K
     5 1X7HJ/MOL/K 1X5HM/SEC )
   17 FORMAT(10XF10.3, F9.3, F9.5, F9.5,F10.4,F10.3,2F9.1,F9.3,2F8.2,I6)
   18 FORMAT(10XF10.3, F9.5, F9.3, F9.5,F10.6,F10.3,2F9.1,F9.3,2F8.2,I6)
   20 CALL PVTDATA
      CALL IDELFIT  $  CALL QVAPFIT
   21 CALL JTLOCUS
   22 CALL TABLIQ
   29 GO TO 90
C     TEST SUBROUTINE THERMO.
   30 P = 40  $  PRINT 14, P  $  PRINT 16
   31 CALL THERMOM  $  V = 1/DEN  $  IW = W $  Z = P/DEN/GKK/T
   32 PRINT 17, T,DEN,V,Z, DPDT,DPDD, E,H,S, CV,CP,IW
   33 CALL THERMOL  $  V = 1/DEN  $  IW = W  $  Z = P/DEN/GKK/T
   34 PRINT 18, T,DEN,V,Z, DPDT,DPDD, E,H,S, CV,CP,IW
   35 CALL THERMOV  $  V = 1/DEN  $  IW = W  $  Z = P/DEN/GKK/T
   36 PRINT 18, T,DEN,V,Z, DPDT,DPDD, E,H,S, CV,CP,IW
   40 P = 50  $  PRINT 14, P  $  PRINT 16
   41 T = 230  $  CALL THERMO  $  V = 1/DEN  $  IW = W $ Z=P/DEN/GKK/T
   42 PRINT 18, T,DEN,V,Z, DPDT,DPDD, E,H,S, CV,CP,IW
   43 T = 234  $  CALL THERMO  $  V = 1/DEN  $  IW = W
   46 Z = P/DEN/GKK/T
   47 PRINT 18, T,DEN,V,Z, DPDT,DPDD, E,H,S, CV,CP,IW
   48 T = 240  $  CALL THERMO  $  V = 1/DEN  $  IW = W $ Z=P/DEN/GKK/T
   49 PRINT 18, T,DEN,V,Z, DPDT,DPDD, E,H,S, CV,CP,IW
C
C     COMPUTE THERMOFUNCTIONS ON ISOBARS. START ON THE MELTING LINE.
C     ISOBARS AT P UNDER PCRT TRAVERSE THE DOME.
C     NOTE USE OF QVAP ,DATA, TO CROSS THE ,DOME,.
```

```
C     NOTE USE OF CSAT ,DATA, FOR SPECIFIC HEATS IN COMPRESSED LIQUID.
   90 IN = 1  $  NI = 48  $  READ 9, (PP(I),I=1,NI)
   91 DO 300 I=IN,NI  $  IP = P = PP(I)  $  IK = I  $  LS = 0
   92 IF(P-IP) 93,94
   93 PRINT 14, P   $   GO TO 95
   94 PRINT 15, IP
   95 PRINT 16
   96 IF(I.EQ.24)  P = PCRT
  100 T = FINDTMF(P)  $  CALL COMPRLQ  $  V=1/DEN  $  IW=W
  101 Z = P/DEN/GKK/T
  102 PRINT 17, T,DEN,V,Z, DPDT,DPDD,E,H,S,CV,CP,IW
  103 IT = T/10  $  IF(P.LT.PCRT) 110,180
C
C     CASES FOR P LESS THAN PCRT.
  110 TS = FINDTSF(P)  $  K = L = 0
  111 DO 150 J=1,99  $  T = JT = 10*(IT+J)
  112 IF(T.LT.TS) 115,117
  115 CALL COMPRLQ  $  V=1/DEN $ IW=W $ Z = P/DEN/GKK/T
  116 PRINT 17, T,DEN,V,Z, DPDT,DPDD, E,H,S, CV,CP,IW  $  GO TO 150
  117 LS = LS + 1  $  IF(LS.EQ.1) 120,130
C     CASE FOR SATURATED LIQUID AND VAPOR.
  120 T = TS  $  CALL COEXIST
  123 V=1/DEN $ VG=1/DNG $ IW=W $ IWG=WG
      Z = P/DEN/GKK/T   $   ZG = P/DNG/GKK/T
  124 PRINT 17, T,DEN,V,Z, DPDT,DPDD,E,H,S,CV,CP,IW  $  PRINT 5
  125 IF(P.LT.30) 126,127
  126 PRINT 18, T,DNG,VG,ZG,DPGDT,DPGDD,EG,HG,SG,CVG,CPG,IWG $ GOTO 128
  127 PRINT 17, T,DNG,VG,ZG,DPGDT,DPGDD,EG,HG,SG,CVG,CPG,IWG
  128 T = JT
C     CASES FOR THE HOMOGENEOUS DOMAIN.
  130 IF(JT.GT.500) 131,132
  131 K = K+1  $  T = JT = JT + 10*K  $  IF(JT.GT.500) 300,132
C 132 CALL GENEOUS  $  V=1/DEN $ IW=W  $  Z = P/DEN/GKK/T
  132 CALL GENIUS   $  V=1/DEN $ IW=W  $  Z = P/DEN/GKK/T
  133 IF(P.LT.30) 134,135
  134 PRINT 18, T,DEN,V,Z, DPDT,DPDD,E,H,S,CV,CP,IW  $  GO TO 150
  135 PRINT 17, T,DEN,V,Z, DPDT,DPDD,E,H,S,CV,CP,IW
  150 CONTINUE
C
C     FOR P.GE.PCRT, CASES T.LE.TCRT, AND T.GT.TCRT.
  180 K=L=0  $  DO 250 J=1,99  $  T = JT = 10*(IT+J)
  181 IF(T.LE.TCRT) 192,210
C     CASE FOR T.LE.TCRT.
  192 CALL COMPRLQ $ V=1/DEN $ IW=W  $  Z = P/DEN/GKK/T
  193 PRINT 17, T,DEN,V,Z, DPDT,DPDD,E,H,S,CV,CP,IW  $  GO TO 250
C     CASE FOR T ABOVE TCRT, HOMOGENEOUS DOMAIN.
  210 IF(JT.GT.500) 211,220
  211 K = K+1  $  T = JT = JT + 10*K  $  IF(JT.GT.500) 300,220
C 220 CALL GENEOUS $ V=1/DEN $ IW=W  $  Z = P/DEN/GKK/T
  220 CALL GENIUS  $ V=1/DEN $ IW=W  $  Z = P/DEN/GKK/T
  221 PRINT 17, T,DEN,V,Z, DPDT,DPDD,E,H,S,CV,CP,IW
  250 CONTINUE
  300 CONTINUE
  999 STOP   $   END
```

```
      SUBROUTINE COEXIST
C     GIVEN T AT COEXISTENCE, GET BOTH VAPOR AND LIQUID FUNCTIONS.
C     FOR VAPOR, GET  DNG,EG,HG,SG, CVG,CPG,WG, DPGDT,DPGDD,  -
C     FOR LIQUID, GET  DEN,E,H,S, CV,CP,CSAT,W. DPDT,DPDD.
C     COEXIST CALLED BY COMPRLQ. P NOT USED, MUST NOT CHANGE.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/5/ DDSDT
      COMMON/8/ IN,IK, P,T,DEN, E,H,S, CV,CP,CSAT, W,WK
      COMMON/9/DNG,EG,HG,SG, CVG,CPG,WG, DPGDT,DPGDD
      COMMON/12/ DELS, DELCV
      COMMON/99/ TI,EZZ, EZ,SZ,CVZ, HZ,CPZ
      DATA (Q=1.01325),(G=0.083145)
    1 FORMAT(1H0 9X *T EXCEEDS TCRT IN COEXIST. * / )
    2 IF(T.GT.TCRT) 3,4
    3 PRINT 1   $   STOP
    4 PS = PSATF(T)  $  DNG = DB = DENGASF(T)
    5 TI = T  $  CALL IDEAL  $  N = 11  $  LD = 1  $  DA = 0
    6 EG = EZZ + EZ + EDELF(0,N,T,DA,DB,LD)  $  HG = EG + 100*PS/DB
    7 SG = SZ + DELS - 100*G*ALOG(G*T*DB/Q)
    8 IF(T.EQ.TCRT) 9,11
    9 PX = PVTF(T,DB,1)  $  DPGDT = DPDT  $  DPGDD = DPDD
   10 CPG = CVG = WG = 0  $  GO TO 14
   11 CVG = CVZ + DELCV  $  PX = PVTF(T,DB,1)
   12 CPG = CVG + 100*T/DPDD*(DPDT/DB)**2  $  WG = SQRT(WK*CPG*DPDD/CVG)
   13 DPGDT = DPDT  $  DPGDD = DPDD
C    NOW TRAVERSE THE ,DOME, USING QVAP ,DATA,.
   14 DEN = DL = DENLIQF(T)  $  DDLDT = DDSDT  $  QV = QVAPXF(T)
   15 QVT = -QV/T  $  H = HG-QV  $  S = SG+QVT  $  E = H - 100*PS/DL
   17 IF(T.EQ.TCRT) 18,19
   18 PX = PVTF(T,DL,1)  $  CP=CV=CSAT=W=0  $  RETURN
   19 CSAT = CSATXF(T)  $  PX = PVTF(T,DL,1)
C  20 IF(T.GT.200) 21,22
C  21 CV = CVSATF(T)  $  GO TO 23
   22 CV = CSAT + 100*T*DPDT*DDLDT/DL/DL
   23 CP = CV + 100*T/DPDD*(DPDT/DL)**2
   30 W = SQRT(WK*CP*DPDD/CV)   $   RETURN  $  END
```

```
      FUNCTION CSATXF(T)
C     NF3 SATLIQ ENTROPY AND CSAT, J/MOL/K, RDG/NBS, NOV. 13, 1979.
C     SSAT = SCRT + A*U**ES + B*LN(X) + C*U + D*U**2 + E*U**3,
C     WHERE  X ≡ T/TCRT,  U ≡ (1-X).
C     CSAT = -ES*A*X/U**(1-ES) + B - C*X - 2*D*X*U - 3*E*X*U**2.
      DIMENSION AS(7)
      DATA (NFS=7),(ES=0.33),(TCRT=234.0),(SCRT=197.03182)
      DATA(AS = -27.04141165, 168.4875348, 117.5913487,
     1 -16.46287979, 241.1959696, -288.5828349, 230.9162107)
    1 FORMAT(1H0 9X 3HT =F10.5, * IN CSATXF(T). * / )
    2 IF(TCRT-T) 3,4,5
    3 PRINT 1, T   $   STOP
    4 CSATXF = 0   $   RETURN
    5 X = T/TCRT  $  U = 1.0 - X  $  UE = U**(ES-1)
    6 CS = -AS(1)*ES*UE + AS(2)/X   $   DO 7 K=3,NFS
    7 CS = CS - (K-2)*AS(K)*U**(K-3)
    9 CSATXF = X*CS   $   RETURN  $  END
```

```
      SUBROUTINE COMPRLQ
C     GIVEN P,T  FOR COMPRLIQ. AT T.LE.TC, GET DEN AND FUNCTIONS.
C     REVISED TO USE HSATF, SSATF, CSATXF, BUT NOT COEXIST. TIMESAVER.
C     INTEGRATE ALONG ISOTHERM T FROM SATLIQ UP TO POINT (P,T).
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/5/ DDSDT
      COMMON/8/ IN,IK, P,T,DEN, E,H,S, CV,CP,CSAT, W,WK
      COMMON/12/ DELS, DELCV
    1 FORMAT(1H0 9X *COMPRLQ  T.GT.TCRT. * / )
    2 IF(T.GT.TCRT) 3,4
    3 PRINT 1   $   STOP
C     GET PSAT, DENLIQ, AND SATLIQ FUNCTIONS FOR START.
    4 PS = PSATF(T)  $  DL = DENLIQF(T)  $  DDLDT = DDSDT
    6 HS = HSATF(T)  $  ES = HS - 100*PS/DL  $  SS = SSATF(T)
C   7 IF(T.GT.200) 8,9
C   8 CVS = CVSATF(T)  $  GO TO 10
    9 PX=PVTF(T,DL,0)  $  CVS = CSATXF(T) + 100*T*DPDT*DDLDT/DL/DL
C     INTEGRATE UP TO POINT (P,T).
   10 DEN = DB = FINDENF(T,P)   $   DX = DB - DL
   11 N = 10  $  LD = 2  $  E = ES + EDELF(1,N,T,DL,DB,LD)
   12 H = E + 100*P/DB  $  S = SS + DELS  $  CV = CVS + DELCV
   13 PX = PVTF(T,DB,1)  $  IF(T.EQ.TCRT) 14,15
   14 CP = CV = W = 0   $   RETURN
   15 CP = CV + 100*T/DPDD*(DPDT/DB)**2  $  W = SQRT(WK*CP*DPDD/CV)
   30 RETURN   $   END
```

```
      FUNCTION DENGASF(T)
C     DESIGNED FOR ZSAT = 1 AT LOW DENSITIES, 5/29/77.
C     USE ZSAT = PS/DS/GK/TS WITH VAPOR PRESSURES, AND ZCRT.
C     Z = 1 + (ZCRT-1)*PI*F(X)/X/X.
C     F(X) = 1 + A1*VE + A2*V + A3*V**2
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/5/ DDSDT
      COMMON/7/ NFG, GE, AV(6)
      COMMON/13/ ZCRT,ZSAT,DZSDT, ZFX, FRT,DFRTDT
      DATA (GKK = 0.083145)
    1 FORMAT(1H0 9X *T EXCEEDS TC IN DENGASF. * / )
    2 IF(TCRT-T) 3,4,6
    3 PRINT 1   $   STOP
    4 DENGASF = DCRT  $  DDSDT = 1.0E+100  $  DZSDT = -1.0E+100
    5 ZSAT = ZCRT  $  ZFX = 1   $   RETURN
    6 IF(T.LE.0) 7,9
    7 DENGASF = DDSDT = 0  $  ZSAT = 1  $  DZSDT = 0
    8 ZFX = 1 + AV(1) + AV(2) + AV(3)   $   RETURN
    9 ZN = ZCRT - 1  $  PC = PCRT  $  TC = TCRT
   10 X = T/TC  $  X2 = X*X  $  V = 1.0 - X
   11 P = PSATF(T)  $  PI = P/PC  $  PIT = DPSDT/PC
   12 VE = V**GE  $  VE1 = -GE*VE/V
   13 ZFX = F = 1 + AV(1)*VE + AV(2)*V + AV(3)*V*V
   14 F1 = AV(1)*VE1 - AV(2) - 2*AV(3)*V
   15 ZSAT = Z = 1 + ZN*PI*F/X2
   16 DZSDT = DZDT = (PI*(F1-2*F/X)/TC + F*PIT)*ZN/X2
   17 DDSDT = (DPSDT - P/T - P*DZDT/Z)/T/Z/GKK
   18 DENGASF = P/T/Z/GKK   $   RETURN   $   END
```

```
      FUNCTION EDELF(L,M,T,DA,DB,LD)
C     GET CHANGE OF E, S, CV WITH DENSITY ALONG ISOTHERMS.
C     GET EDELF, DELS, DELCV FROM DA TO DB ON ISOTHERM T.
C     ROMBERG NUMERICAL INTEGRATION VIA  -
C     CARNAHAN/LUTHER/WILKES, APPLIED NUMERICAL METHODS, P. 90,
C     JOHN WILEY AND SONS, INC., N.Y., 1969.
C     SPECIAL REVISION FOR VERY LOW DENSITIES.
C     NOTE NK GIVES FINAL, TOTAL SUBDIVISIONS OF INTERVAL DX.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT, DPMDT, DPDD,DPDR,DTSDR,DTHDR
      COMMON/12/ DELS, DELCV
      COMMON/13/ ZCRT,ZSAT,DZSDT,ZFX, FRT,DFRTDT
      DIMENSION E(20), S(20), C(20)
      DATA (DI = 0.0001),(G = 0.083145)
    1 FORMAT(1H09X*EDELF L =*I2,5H, N =I3,5H, T = F8.3,6H, DA =E10.4,
     1 6H, DB =E10.4, 6H, LD =I2//
     2 10X 1HN 7X5HEDELF 8X4HDELS 7X5HDELCV )
    2 FORMAT(1H0 9X 6HEDIF =F10.3, 8H, SDIF =F10.5, 9H, CVDIF =F10.3)
    3 FORMAT(6X I5, F12.3, F12.5, F12.3)
C     FOR DA=0 AND DB.LE.DI, IDEAL GAS, EDELF=DELS=DELCV=0.
C     FOR DA=0 AND DB.GT.DI, START ROMBERG WITH DA = DI,  -
C     TO AVOID INFINITIES IN ORDINATE FUNCTIONS AT DA = 0.
    9 NMAX = M  $  NK = 0  $  ZK = 1.0-1/ZCRT  $  RK = 100*G*TCRT/DCRT
   10 IF(L.EQ.0) 11,14
   11 IF(DB.LE.DI) 12,13
   12 EDELF = DELS = DELCV = 0   $   RETURN
   13 DA = DI
C    GET FIRST TRAPEZOID AREA, E(1) ETC., FROM DA TO DB.
   14 DX = DB - DA  $  P = PVTF(T,DA,0)  $  IF(DA.LT.DCRT) 16,17
   16 EA = RK*(ZK*ZSAT*ZFX + FRT - T*DFRTDT)  $  GO TO 18
   17 EA = 100*(P-T*DPDT)/DA/DA
   18 IF(L.EQ.0) 19,20
   19 SA =  100*(G-DPDT/DA)/DA  $  GO TO 21
   20 SA = -100*DPDT/DA/DA
   21 CA = -100*T*D2PDT2/DA/DA
   22 P = PVTF(T,DB,0)  $  IF(DB.LT.DCRT) 23,24
   23 EB = RK*(ZK*ZSAT*ZFX + FRT - T*DFRTDT)  $  GO TO 25
   24 EB = 100*(P-T*DPDT)/DB/DB
   25 IF(L.EQ.0) 26,27
   26 SB =  100*(G-DPDT/DB)/DB  $  GO TO 28
   27 SB = -100*DPDT/DB/DB
   28 CB = -100*T*D2PDT2/DB/DB
   29 E(1)=(EA+EB)*DX/2  $  S(1)=(SA+SB)*DX/2  $  C(1)=(CA+CB)*DX/2
C    INTERVAL HALVING, GET E(N+1), ETC.
   30 NK = 1  $  DO 60 N=1,M  $  NP = K = N + 1
   31 JM = 2**N - 1  $  DXN = DX/2**N  $  E(K) = S(K) = C(K) = 0
   33 DO 45 J=1,JM,2  $  NK = NK+1  $  DN = DA + J*DXN
   34 P = PVTF(T,DN,0)  $  IF(DN.LT.DCRT) 35,36
   35 EB = RK*(ZK*ZSAT*ZFX + FRT - T*DFRTDT)  $  GO TO 37
   36 EB = 100*(P-T*DPDT)/DN/DN
   37 IF(L.EQ.0) 38,39
   38 SB =  100*(G-DPDT/DN)/DN  $  GO TO 40
   39 SB = -100*DPDT/DN/DN
   40 CB = -100*T*D2PDT2/DN/DN
   41 E(K) = E(K) + EB  $  S(K) = S(K) + SB  $  C(K) = C(K) + CB
   45 CONTINUE  $  E(K) = E(N)/2 + E(K)*DXN
   46 S(K) = S(N)/2 + S(K)*DXN  $  C(K) = C(N)/2 + C(K)*DXN
C
```

```
C     TEST FOR CONVERGENCE.
   50 ED=ABS(E(K)-E(N))  $  SD=ABS(S(K)-S(N))  $  CD=ABS(C(K)-C(N))
   53 IF(ED.LT.0.5/LD) 54,60
   54 IF(SD.LT.0.002/LD) 55,60
   55 IF(T.EQ.TCRT.AND.DB.GE.DCRT)  GO TO 57
   56 IF(CD.LT.0.05/LD) 57,60
   57 EDELF = E(K)  $  DELS = S(K)  $  DELCV = C(K)  $  RETURN
   60 CONTINUE  $  N = M  $  NM = N-1  $  NP = N+1
   61 PRINT 1, L, N, T, DA, DB, LD
   62 PRINT 3, NM,E(NM),S(NM),C(NM)  $  PRINT 3, N,E(N),S(N),C(N)
   64 PRINT 3, NP,E(NP),S(NP),C(NP)  $  PRINT 2, ED, SD, CD
   99 STOP  $  END


      FUNCTION FINDENF(T,P)
C     ON ISOTHERM T, FIND DEN, MOL/L, TO MINIMIZE (P-PC) VIA EQNSTATE.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      DATA (DM=27.0),(GKK=0.083145)
   41 FORMAT(1H0 9X *FINDENF = 0,  FAILS TO CONVERGE. * / )
   42 FORMAT(1H0 9X *FINDENF = DCRT, DP/DR ZERO OR NEG. * / )
   43 FORMAT(1H0 9X *FINDENF = 0, DOUBLE-VALUED AT P = PSAT. * / )
      IF(T.GT.0.AND.P.GT.0) 1,35
    1 IF(T-TCRT) 2,5,8
    2 DG=DENGASF(T) $ DL=DENLIQF(T) $ PS=PSATF(T)  $  IF(P-PS) 3,32,4
    3 D = DG/2  $  GO TO 11
    4 D = (DL+DTRP)/2  $  GO TO 11
    5 DG=DL=DCRT  $  PS=PCRT  $  IF(P-PS) 6,33,7
    6 D = DCRT/2  $  GO TO 11
    7 D = 2*DCRT  $  GO TO 11
    8 IF(T.LT.300) 9,10
    9 PC = PVTF(T,DCRT,0)  $  IF(P-PC) 6,33,7
   10 D = DCRT
   11 DO 30 J=1,50 $ DP=P-PVTF(T,D,1) $ IF(ABS(DP/P)-1.0E-7) 31,31,12
   12 IF(DPDD.GT.0) 13,34
   13 DD = DP/DPDD  $  IF(ABS(DD/D)-1.0E-7) 31,31,14
   14 D = D + DD  $  IF(D.GT.0.0) 16,15
   15 D = P/GKK/T  $  GO TO 30
   16 IF(D.GT.DM) 17,18
   17 D = DM  $  GO TO 30
   18 IF(T-TCRT) 19,24,30
   19 IF(P.LT.PS) 20,22
   20 IF(D.GT.DG) 21,30
   21 D = DG  $  GO TO 30
   22 IF(D.LT.DL) 23,30
   23 D = DL  $  GO TO 30
   24 IF(P.LT.PCRT) 25,27
   25 IF(D.LT.DCRT) 30,26
   26 D = DCRT - 0.02  $  GO TO 30
   27 IF(D.GT.DCRT) 30,28
   28 D = DCRT + 0.02
   30 CONTINUE  $  PRINT 41  $  STOP
   31 FINDENF = D  $  RETURN
   32 PRINT 43  $  STOP
   33 FINDENF = DCRT  $  RETURN
   34 FINDENF = DCRT  $  PRINT 42  $  RETURN
   35 FINDENF=DPDT=D2PDT2=0  $  DPDD=GKK*T  $  DPDR=DPDD*DTRP
   36 RETURN  $  END
```

```
      FUNCTION DENLIQF(T)
C     DEN = DCRT + YNL*(X + (XE-X)*Y),    YNL ≡ DTRP - DCRT.
C     Y = A1 + A2*EXP(2*(1-1/U)),    U ≡ T/TC.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/5/ DDSDT
      COMMON/10/ NFL, EL, AW(6)
    1 FORMAT(1H0 9X *DENLIQF = 0, T EXCEEDS TCRT. * / )
    2 IF(TCRT-T) 3,4,5
    3 PRINT 1   $   STOP
    4 DENLIQF = DCRT  $  DDSDT = -1.0E+100 $  RETURN
    5 XN=TCRT-TTRP $ X=(TCRT-T)/XN $ X2 = X*X  $  DXDT = -1.0/XN
    6 XE = X**EL  $  V = XE - X  $  V1 = EL*XE/X - 1
    7 U = T/TCRT  $  ARG = 2.0*(1-1/U)
    8 XP = EXP(ARG)  $  XP1T = 2*XP/U/U/TCRT
    9 Y = AW(1) + AW(2)*XP  $  Y1T = AW(2)*XP1T
   10 V1T = V1*DXDT  $  YNL = DTRP - DCRT
   11 DENLIQF = DCRT + YNL*(X + V*Y)
   12 DDSDT = YNL*(DXDT + V*Y1T + V1T*Y)   $   RETURN  $  END
```

```
      FUNCTION FINDTMF(P)
C     GIVEN P ON THE MELTING LINE, FIND T FOR METHANE.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      DATA (QP=1.01325),(E=1.85),(A=1884.43)
    1 AQ = A*QP  $  X = (P-PTRP)/AQ + 1  $  FINDTMF = TTRP*X**(1.0/E)
    9 RETURN   $   END
```

```
      FUNCTION FINDTSF(P)
C     GIVEN VAPOR PRESSURE P, ITERATE T TO MINIMIZE (P-PC).
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPHDT,DPDD,DPDR,DTSDR,DTHDR
    1 FORMAT(1H0 9X *FINDTSF = 0,  FAILS TO CONVERGE. * / )
    2 FORMAT(1H0 9X *FINDTSF = 0,  P EXCEEDS PCRT. * / )
    3 IF(P-PCRT) 4,11,12
    4 T = 200  $  DO 9 J=1,50  $  DP = P - PSATF(T)  $  ADP = ABS (DP)
    5 IF(ADP/P-1.0E-6) 10,6,6
    6 IF(ADP/DPSDT/T-1.0E-6) 10,7,7
    7 T = T + DP/DPSDT  $  IF(T-TCRT) 9,9,8
    8 T = TCRT
    9 CONTINUE  $  PRINT 1  $  STOP
   10 FINDTSF = T   $   RETURN
   11 FINDTSF = TCRT   $   RETURN
   12 PRINT 2  $  STOP  $  END
```

```
      SUBROUTINE GENEOUS
C     GIVEN P,T FOR THE HOMOGENEOUS DOMAIN -
C     GET DEN AND FUNCTIONS AT ANY TEMPERATURE.
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/8/ IN,IK, P,T,DEN, E,H,S, CV,CP,CSAT, W,WK
      COMMON/12/ DELS, DELCV
      COMMON/19/ KD
      COMMON/99/ TI,EZZ, EZ,SZ,CVZ, HZ,CPZ
      DATA (Q=1.01325),(G=0.083145)
    3 TI = T  $  CALL IDEAL  $  IF(P.GT.0) 4,10
    4 DEN = DB = FINDENF(T,P)  $  N = 11  $  LD = KD  $  DA = 0
    5 E = EZZ + EZ + EDELF(0,N,T,DA,DB,LD)  $  H = E + 100*P/DB
    6 S = SZ + DELS - 100*G*ALOG(G*T*DB/Q)
    7 CV = CVZ + DELCV  $  PX = PVTF(T,DB,1)
    8 CP = CV + 100*T/DPDD*(DPDT/DB)**2
    9 W = SQRT(WK*CP*DPDD/CV)  $  RETURN
   10 DEN=S=0  $  E = EZZ + EZ  $  H = E + 100*G*T  $  CV=CVZ $ CP=CPZ
   12 W = SQRT(WK*CP*G*T/CV)  $  RETURN  $  END
```

```
      SUBROUTINE GENIUS
C     SAVES COMPUTER TIME WHEN TABULATING FUNCTIONS ALONG ISOBARS.
C     SAVES DEN,E,S,CV ALONG ISOBARS FOR USE IN INTEGRATING TO NEXT
C     HIGHER ISOBAR. VALID ONLY FOR MONOTONICALLY INCREASING ISOBAR
C     PRESSURES, AND AT TEMPS. T = INTEGER MULTIPLES OF 10 K.
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/8/ IN,IK, P,T,DEN, E,H,S, CV,CP,CSAT, W,WK
      COMMON/12/ DELS, DELCV
      COMMON/19/ KD
      DIMENSION DK(70),EK(70),SK(70),CK(70)
    1 FORMAT(1H0 9X *GENIUS T NOT INTEGRAL. * / )
    2 J = T/10  $  IF(T - 10*J) 3,4
    3 PRINT 1  $  STOP
    4 IF(IK.EQ.IN) 5,9
    5 KD = LD = 2  $  CALL GENEOUS  $  KD = 1
    6 DK(J) = DEN  $  EK(J) = E  $  SK(J) = S  $  CK(J)=CV  $  RETURN
C     INTEGRATE FROM OLD DEN UP TO NEW DEN ON GIVEN ISOTHERM.
    9 DA = DK(J)  $  DK(J) = DEN = DB = FINDENF(T,P)  $  N = 10
   11 EK(J) = E = EK(J) + EDELF(1,N,T,DA,DB,LD)  $  H = E + 100*P/DB
   13 SK(J) = S = SK(J) + DELS  $  CK(J) = CV = CK(J) + DELCV
C     NOW GET NEW DP/DT, DP/DD, CP, W.
   15 PX = PVTF(T,DB,1)  $  CP = CV + 100*T/DPDD*(DPDT/DB)**2
   30 W = SQRT(WK*CP*DPDD/CV)  $  RETURN  $  END
```

```
      FUNCTION HSATF(T)
C     NF3 SATLIQ ENTHALPY, J/MOL, RDG/NBS, NOV. 13, 1979.
C     BASED ON EZZ = HZZ = 12340.685 J/MOL.
C     FOR 35 POINTS, TTRP THRU TCRT, RMSPCT = 0.003.
C     DEFINE YH ≡ (H-HC)/(HT-HC),  X ≡ (TC-T)/(TC-TT),  WHEN -
C     YH = X + (XE-X)*(A1 + A2*X + A3*X2 + . . .)
      DIMENSION AH(8)
      DATA (NFH=8),(TTRP=66.35),(TCRT=234.0)
      DATA (EH=0.35),(HTRP=0.0),(HCRT=15460.422)
      DATA(AH = 0.4046924015, -0.222397394, 1.684556929, -5.424338100,
     1 8.875748786, -7.740104222, 3.181911763, -0.4505783783)
    1 FORMAT(1H0 9X 3HT =F10.5, * IN HSATF(T).*/)
    2 IF(TCRT-T) 3,4,5
    3 PRINT 1, T  $  STOP
    4 HSATF = HCRT  $  RETURN
    5 IF(T.EQ.TTRP) 6,7
    6 HSATF = 0.0  $  RETURN
    7 X = (TCRT-T)/(TCRT-TTRP)  $  V = X**EH - X  $  FX = X
    8 DO 9 K=1,NFH  $  FX = FX + V*AH(K)*X**(K-1)
    9 CONTINUE  $  HSATF = HCRT*(1 - FX)  $  RETURN  $  END



      SUBROUTINE IDEAL
C     NITROGEN TRIFLUORIDE IDEAL GAS FUNCTIONS, R.D.G., 1/23/79.
C     CPZ/R = 4 + (A1 + A2/X + A3/X2 + . . )*EXP(-E/X),  X ≡ T/100.
      COMMON/99/ TI,EZZ, EZ,SZ,CVZ, HZ,CPZ
      DIMENSION A(5)
      DATA (NF=5),(E=8.76),(R=8.3145)
      DATA(A=6.1189724,48.162688,228.231405,-249.067052,564.293045)
    1 XI = TI/100  $  XP = EXP(-E/XI)
    4 CP = 4.0  $  DO 5 K=1,NF
    5 CP = CP + A(K)*XP*XI**(1-K)
C     NUMERICAL INTEGRATION FOR HZ/RT, SZ/R. START AT T = 300.
    9 SI = 4.184*62.378/R  $  HI = 4184.0*(0.024 + 2.832)/300/R
   10 H = S = 0  $  N = ABS(TI-300)/2 + 2  $  DX = (XI-3)/N
   11 DO 20 J=1,N  $  X = 3.0 + (J-0.5)*DX  $  XP = EXP(-E/X)
   15 CPX = 4.0  $  DO 16 K=1,NF
   16 CPX = CPX + A(K)*XP*X**(1-K)
   17 H = H + CPX*DX  $  S = S + CPX*DX/X
   20 CONTINUE  $  S = SI + S  $  H = (H + 3*HI)/XI
C     CONVERT TO JOULES, MOLES, KELVINS.
   21 HZ = H*R*TI  $  EZ = HZ - R*TI  $  SZ = R*S
   22 CPZ = R*CP  $  CVZ = CPZ - R  $  RETURN  $  END



      FUNCTION PMELTF(T)
C     METHANE SOLID-LIQUID MELTING PRESSURE, BAR.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      DATA (QP=1.01325),(E=1.85),(A=1884.43)
    1 X = T/TTRP  $  XE = X**E  $  AQ = A*QP
    2 PMELTF = PTRP + AQ*(XE-1)
    3 DPMDT = AQ*E*XE/X/TTRP  $  RETURN  $  END
```

```
      SUBROUTINE JTLOCUS
C     DERIVE THE J-T INVERSION CURVE.  USE ROUTINE DELTAF(T,DI).
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      DIMENSION DK(60),DN(60),TT(60),PP(60)
      DATA (A=1.29079),(B=0.49734)
    1 FORMAT(1H1 16X *THE JOULE-THOMSON INVERSION LOCUS FOR NITROGEN TRI
     1FLUORIDE. * //
     2 17X 3HT,K 8X2HDI 5X5HMOL/L 5X5HP,BAR
     3  7X3HT,K 8X2HDI 5X5HMOL/L 5X5HP,BAR )
    2 FORMAT(10X I10, 2F10.3, F10.2,  I10, 2F10.3, F10.2)
C     SAVE INITIAL, TRIAL DENSITY, DK(I) = DI.
    5 TA = 180   $   NP = 52
    6 PRINT 1  $  DO 25 I=1,NP  $  DX = 1.6
    7 T = TA + 10*I  $  X = T/TCRT  $  DK(I) = DI = DCRT*EXP(A-B*X)
   10 IF(T-TCRT) 11,12,12
   11 DL = DENLIQF(T)  $  IF(DI.LT.DL) 23,12
   12 SS = DELTAF(T,DI)   $   DO 20 IT=1,20
   14 D=DI-DX $ SL=DELTAF(T,D)   $   D=DI+DX $ SP=DELTAF(T,D)
   15 IF(SS-SL) 18,16,16
   16 IF(SP-SL) 19,17,17
   17 SS = SL  $  DI = DI - DX  $  GO TO 20
   18 IF(SS-SP) 20,20,19
   19 SS = SP  $  DI = DI + DX
   20 DX = DX/2  $  TT(I) = T  $  DN(I) = DI  $  PP(I) = PVTF(T,DI,0)
   21 GO TO 25
   23 TT(I) = T  $  DK(I) = DN(I) = PP(I) = 0
   25 CONTINUE  $  N = NP/2  $  DO 29 J=1,N  $  K = J + N
   26 IT = TT(J)  $  ITT = TT(K)
   29 PRINT 2, IT,DK(J),DN(J),PP(J), ITT,DK(K),DN(K),PP(K)
   30 RETURN    $    END
```

```
      FUNCTION DELTAF(T,D)
C     GET (T*DP/DT - D*DP/DD) FOR THE J-T INVERSION CURVE.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
    1 IF(T-TCRT) 2,4,4
    2 DL = DENLIQF(T)  $  IF(D-DL) 3,3,4
    3 DELTAF = 1.0E+100  $  RETURN
    4 P = PVTF(T,D,1)
    5 DELTAF = ABS (T*DPDT-D*DPDD)   $   RETURN  $  END
```

```
      SUBROUTINE PRINTIT
C     PRINTOUT ISOCHORES AND ISOTHERMS.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      DATA (R = 0.083145)
    1 FORMAT(I5, 2F10.0)
    5 FORMAT(1X)
    6 FORMAT(1H1 25X *NF3 ISOCHORE AT*F7.3, * MOL/L*// 17X 3HT,K
     1 5X5HP,BAR 9X1HZ 5X5HDP/DD 5X5HDP/DT 5X7HD2P/DT2 )
    7 FORMAT(10X 2F10.3, F10.5, F10.3, F10.4, F12.6)
    8 FORMAT(1H1 25X *NF3 ISOTHERM AT*F7.2, * DEG. K*// 15X 5HMOL/L
     1 5X5HP,BAR 9X1HZ 5X5HDP/DD 5X5HDP/DT 5X7HD2P/DT2 )
    9 FORMAT(10X 2F10.3, F10.5, F10.3, F10.4, F12.6)
C     PRINTOUT THE ISOCHORES.
   20 DO 60 I=1,27  $  IF(I.EQ.1) 21,22
   21 DN = 0.5  $  GO TO 30
   22 IF(I.EQ.9) 23,24
   23 DN = DCRT  $  GO TO 30
   24 DN = I - 1
   30 PRINT 6, DN  $  TS = TSATF(DN)  $  PS = PVTF(TS,DN,1)
   31 Z = PS/DN/R/TS
   32 PRINT 7, TS,PS,Z, DPDD,DPDT,D2PDT2
   38 IF(I.LT.10) 39,40
   39 IT = 8  $  GO TO 50
   40 IF(I.LT.14) 41,42
   41 IT = 4  $  GO TO 50
   42 IF(I.LT.19) 43,44
   43 IT = 2  $  GO TO 50
   44 IT = 1
   50 DO 59 J=68,504,IT  $  TT = J  $  IF(TT-TS) 59,59,52
   52 PP = PVTF(TT,DN,1)  $  IF(PP.GT.360) 60,55
   55 Z = PP/DN/R/TT
   58 PRINT 7, TT,PP,Z, DPDD,DPDT,D2PDT2
   59 CONTINUE
   60 CONTINUE
C     PRINTOUT THE ISOTHERMS.
  100 DO 130 I=1,99  $  READ 1, IDD, TT,DX  $  IF(IDD) 101,999
  101 PRINT 8, TT  $  PM = PMELTF(TT)
  102 IF(TT-TCRT) 103,103,104
  103 DG = DENGASF(TT)  $  DL = DENLIQF(TT)
  104 L = 0  $  DS = DX
  105 DO 120 N=1,1500  $  DN = N*DS  $  IF(TT-TCRT) 106,106,117
  106 IF(DN.GE.DG.AND.DN.LE.DL) 107,117
  107 L = L+1  $  IF(L.EQ.1) 108,120
  108 PG = PVTF(TT,DG,1)  $  Z = PG/DG/R/TT
  109 PRINT 9, DG,PG,Z, DPDD,DPDT,D2PDT2
  110 PRINT 5
  111 PL = PVTF(TT,DL,1)  $  Z = PL/DL/R/TT
  112 PRINT 9, DL,PL,Z, DPDD,DPDT,D2PDT2
  116 GO TO 120
  117 PP = PVTF(TT,DN,1)  $  IF(PP.GT.PM.OR.PP.GT.400) 130,118
  118 Z = PP/DN/R/TT
  119 PRINT 9, DN,PP,Z, DPDD,DPDT,D2PDT2
  120 CONTINUE
  130 CONTINUE
  999 RETURN  $  END
```

```
      FUNCTION PSATF(T)
C     LN(P) = P1 + P2/X + P3*X + P4*X2 + P5*X3 + P6*X*(1-X)**EPP.
C     WHERE,  X ≡ T/TCRT,  U ≡ 1/X.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/2/ NFP, EPP, PJ(6)
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
    1 FORMAT(1H0 9X *T ABOVE TCRT IN PSATF(T), * / )
    2 X = T/TCRT  $  X2 = X*X  $  X3 = X*X2  $  X1T = 1.0/TCRT
    3 IF(X.LE.0) 4,5
    4 PSATF = DPSDT = 0   $   RETURN
    5 U = 1.0/X  $  U1T = -X1T/X/X
    6 V = 1.0 - X  $  IF(V) 7,8,9
    7 PRINT 1   $   STOP
    8 Z = Z1 = 0  $  GO TO 10
    9 Z = V**EPP  $  Z1 = -EPP*Z/V
   10 A=PJ(1) $ B=PJ(2) $ C=PJ(3) $ D=PJ(4) $ E=PJ(5) $ F=PJ(6)
   11 PL = A + B*U + C*X + D*X2 + E*X3 + F*X*Z
   12 PL1T = B*U1T + (C + 2*D*X + 3*E*X2 + F*(X*Z1+Z))*X1T
   16 PSATF = EXP(PL)  $  DPSDT = PL1T*PSATF  $  RETURN  $  END
```

```
      SUBROUTINE PVTDATA
C     NITROGEN TRIFLUORIDE EQNSTATE, R.D.G.(NBS), SEPT. 24, (1979).
      COMMON GK,GKK, B1,B2,B3,B4,B5, C1,C2,C3, E1,E2,E3, ER,IX
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/2/ NFP, EPP, PJ(6)
      COMMON/7/ NFG, GE, AV(6)
      COMMON/8/ IN,IK, P,T,DEN, E,H,S, CV,CP,CSAT, W,WK
      COMMON/10/ NFL, EL, AW(6)
      COMMON/13/ ZCRT,ZSAT,DZSDT, ZFX, FRT,DFRTDT
      COMMON/19/ KD
      COMMON/99/ TI,EZZ, EZ,SZ,CVZ, HZ,CPZ
   15 NFP=6 $ EPP=1.75 $ NFG=3 $ NFL=2 $ GE = EL = 1.0/3.0
   17 WM = 71.0019  $  DCRT = 7.92  $  DTRP = 26.32
   18 TTRP = 66.35  $  TCRT = 234.0  $  GKK = 0.083145  $  GK=GKK*DCRT
   19 PJ(1) = 20.315417602  $  PJ(2) = -8.362069370
   20 PJ(3) =-21.398986401  $  PJ(4) = 20.162194616
   21 PJ(5) = -6.918662727  $  PJ(6) =  3.677799376
   22 PTRP = PSATF(TTRP)  $  PCRT = PSATF(TCRT)
   23 ZCRT = PCRT/DCRT/GKK/TCRT
   25 AV(1) = -0.7109566941  $  AV(2) = 0.3800175233
   26 AV(3) =  1.622847586  $  DGAT = DENGASF(TTRP)
   28 AW(1) = 0.754377410  $  AW(2) = 0.027975083
   30 IX=1 $ AL=1 $ GA=1 $ DE=0.5 $ EP=1  $  BE = ER = 0
   31 B1 = 0.55199813920  $  B2 = 0.13268809584  $  B3 = 0.20608495802
   32 E1 = 0.74067409894  $  E2 = 0.29375371520  $  E3 = 0
   33 WK = 100000/WM  $  KD = 1  $  EZZ = 12340.685
   99 RETURN   $   END
```

```
      FUNCTION PVTF(T,D,M)
C     NF3 EQNSTATE, PVTF = P,BAR.
C     NOTE, M=0 RETURNS DP/DT, D2P/DT2.  M=1 RETURNS ALSO DP/DD.
C     P-PSAT = S*GK*(T-TSAT) + S*S*GK*TCRT*F(S,T),  WHERE -
C     F(S,T) ≡ B(S)*XBF(S,T) + E(S)*XEF(S,T),  AND -
C     B(S) ≡ B1 + B2*S + B3*S2,  E(S) ≡ (E1+E2*S)*(S-1)*EXP(-GA*S**IX).
C     WHERE,   R ≡ DEN/DTRP,  S ≡ DEN/DCRT.
      COMMON GK,GKK, B1,B2,B3,B4,B5, C1,C2,C3, E1,E2,E3, ER,IX
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/4/XB1,XB2, XC1,XC2, XE1,XE2, DXBDR,DXCDR,DXEDR
      COMMON/6/ TSAT, THETA, PSAT
      COMMON/13/ ZCRT,ZSAT,DZSDT, ZFX, FRT,DFRTDT
    1 S = D/DCRT  $  S2=S*S  $  S3=S*S2  $  SN=S-1  $  SX=S**IX
    2 GK = DCRT*GKK  $  TC = TCRT  $  DSDR = DTRP/DCRT
    3 RG = S*GK  $  GKT = GK*TC  $  TSAT = TS = TSATF(D)
    4 THETA = THETAF(D)  $  PSAT = PS = PSATF(TS)
    5 XB = XBF(T,D)  $  XE = XEF(T,D)
    6 B = (B1 + B2*S + B3*S2)*S2  $  XP = EXP(-GA*SX)
   10 SE = E1*S2 + E2*S3  $  SM = SE*SN  $  E = SM*XP
   12 F = B*XB + E*XE  $  F1 = B*XB1 + E*XE1  $  F2 = B*XB2 + E*XE2
   13 PVTF = PS + RG*(T-TS) + GKT*F  $  FRT=F/S2  $  DFRTDT=F1/S2/TC
   14 DPDT = RG + GK*F1  $  D2PDT2 = GK*F2/TC  $  IF(M) 15,30
   15 BD = (2*B1 + 3*B2*S + 4*B3*S2)*S*DSDR
   16 SM1 = SE + (2*E1*S + 3*E2*S2)*SN  $  XP1 = -IX*GA*SX/S
   17 ED = (SM*XP1 + SM1)*XP*DSDR
   20 F1 = B*DXBDR + BD*XB  +  E*DXEDR + ED*XE
   26 DPDR = (DPSDT-RG)*DTSDR + (T-TS)*GK*DSDR + GKT*F1
   27 DPDD = DPDR/DTRP
   30 RETURN  $  END
```

```
      FUNCTION QVAPXF(T)
C     NITROGEN TRIFLUORIDE, OCT. 16, 1969.  NBS/RDG.
C     FOR 16 THERMALOOP AND 35 CLAPEYRON DATA, RMSPCT = 0.05.
C     QVAP/QTRP = X + (XE-X)*(A + B*X + C*X2),  WHERE -
C     X ≡ (TC-T)/(TC-TT),    XE ≡ X**E.
      DATA (E=0.38),(QT=14.548),(TTRP=66.35),(TCRT=234.0),(XN=167.65)
      DATA (A=0.998247122),(B=0.269536103),(C=-0.405010672)
    1 FORMAT(1H0 9X *T EXCEEDS TCRT IN QVAPXF(T). * / )
    2 IF(TCRT-T) 3,4,5
    3 PRINT 1   $ ' STOP
    4 QVAPXF = 0  $  RETURN
    5 X = (TCRT-T)/XN  $  X2 = X*X  $  XE = X**E
    6 Q = QT*(X + (XE-X)*(A + B*X + C*X2))
    7 QVAPXF = Q*1000   $   RETURN  $  END
```

```
      FUNCTION SSATF(T)
C     NF3 SATLIQ ENTROPY, J/MOL/K, RDG/NBS, NOV. 13, 1979.
C     FOR 35 POINTS, TTRP THRU TCRT, RMSPCT = 0.002.
C     SSAT - SCRT = A1*U**ES + A2*LN(X) + A3*U + A4*U2 + A5*U3,  WHERE -
C     X ≡ T/TCRT,  U ≡ (1-X).
      DIMENSION AS(7)
      DATA (NFS=7),(ES=0.33),(TCRT=234.0),(SCRT=197.03182)
      DATA(AS = -27.04141165, 168.4875348, 117.5913487,
     1 -16.46287979, 241.1959696, -288.5828349, 230.9162107)
    1 FORMAT(1H0 9X 3HT =F10.5, * IN SSATF(T). * / )
    2 IF(TCRT-T) 3,4,5
    3 PRINT 1, T   $   STOP
    4 SSATF = SCRT   $   RETURN
    5 X = T/TCRT  $  U = 1.0 - X
    6 SSATF = SCRT + AS(1)*U**ES + AS(2)*ALOG(X)  $  DO 7 K=3,NFS
    7 SSATF = SSATF + AS(K)*U**(K-2)   $   RETURN  $  END
```

```
      SUBROUTINE TABLIQ
C     TABULATE NF3 SATURATED LIQUID FUNCTIONS.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/5/ DDSDT
      COMMON/6/ TSAT, THETA, PSAT
      COMMON/8/ IN,IK, P,T,DEN, E,H,S, CV,CP,CSAT, W,WK
      COMMON/9/DNG,EG,HG,SG, CVG,CPG,WG, DPGDT,DPGDD
      DIMENSION TSA(40), PSA(40)
      DATA (G = 0.083145)
    4 FORMAT(1H1 13X *PROPERTIES OF SATURATED LIQUID NITROGEN TRIFLUORID
     1E. * //
     1 14X 1HT 10X1HP 5X3HDEN 7X1HZ 3X5HV,LIQ 6X5HV,GAS
     2 5X6HDPS/DT 3X6HDDL/DT 3X5HDP/DT 6X5HDP/DD /
     3 10X5HDEG K 8X3HBAR 3X5HMOL/L 8X 3X5HL/MOL 6X5HL/MOL
     4 6X5HBAR/K 2X7HMOL/L/K 3X5HBAR/K 2X9HBAR-L/MOL )
    5 FORMAT(5XF10.3, E11.4, F8.3, F8.5, F8.5, 2E11.4, F9.5, F8.3,E11.4)
   11 FORMAT(1H1 13X *PROPERTIES OF SATURATED LIQUID NITROGEN TRIFLUORID
     1E. * //
     1 14X1HT 10X1HP 4X5HQ,VAP 8X1HE 8X1HH 8X1HS
     2 6X2HCV 6X2HCS 6X2HCP 6X1HW /
     3 10X5HDEG K 8X3HBAR 4X5HJ/MOL 4X5HJ/MOL 4X5HJ/MOL 2X7HJ/MOL/K
     4 1X7HJ/MOL/K 1X7HJ/MOL/K 1X7HJ/MOL/K 2X5HM/SEC )
   12 FORMAT(5X F10.3, E11.4, 3F9.1, F9.3, 3F8.2, I7)
C     FOR PAGE ONE OF TABLIQ.
C     REPLACE T = 145 BY BOILING-POINT AT J = 17.
  130 PRINT 4   $   NP = 37
  131 DO 150 J=1,NP  $  IF(J.EQ.1) 132,133
  132 T = TTRP  $  GO TO 139
  133 IF(J.EQ.17) 134,135
  134 T = FINDTSF(1.01325)  $  GO TO 139
  135 IF(J.EQ.NP) 136,138
  136 T = TCRT  $  DG = DL = DCRT  $  DDLDT = 0
  137 VG = VL = 1.0/DCRT  $  GO TO 141
  138 T = 60 + 5*J
      IF(J.EQ.35)  T = 232
      IF(J.EQ.36)  T = 233
  139 DL = DENLIQF(T)  $  DDLDT = DDSDT
  140 DG = DENGASF(T)  $  VG = 1/DG  $  VL = 1/DL
  141 TSA(J) = T  $  PX = PVTF(T,DL,1)
  147 PSA(J) = PS = PSAT  $  Z = PS/DL/G/T
  150 PRINT 5, T,PS,DL,Z, VL,VG, DPSDT,DDLDT, DPDT,DPDD
C     FOR PAGE TWO OF TABLIQ.
C     USE COEXIST AT ALL TEMPS.
  160 PRINT 11  $  DO 170 J=1,NP  $  P = PSA(J)  $  T = TSA(J)
  164 CALL COEXIST  $  IW = W   $   QX = QVAPXF(T)
  170 PRINT 12, T,P,QX, E,H,S, CV,CSAT,CP, IW
  999 RETURN    $    END
```

```
      SUBROUTINE THERMO
C     THERMO IS FOR COMPUTATION AT ANY, RANDOM (P,T) POINT.
C     THERMO ASSUMES AN ISOBAR IN SINGLE-PHASE ONLY.
C     GIVEN (P,T), RETURNS DEN, E,H,S, CV,CP,W, DPDT,DPDD.
C     ENTRIES BELOW FOR PHASE BOUNDARIES ASSUME A GIVEN ISOBAR P.
C     NITROGEN TRIFLUORIDE ROUTINES, RDG/NBS, NOV. 13, 1979.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/8/ IN,IK, P,T,DEN, E,H,S, CV,CP,CSAT, W,WK
      COMMON/9/ DNG,EG,HG,SG, CVG,CPG,WG, DPGDT,DPGDD
    1 FORMAT(1H0 9X *THERMO T =* F8.3, 5H, P = E12.5/
     1 10X *T BELOW TTRP, NOT DEFINED. * / )
    2 FORMAT(1H0 9X *THERMO T =* F8.3, 5H, P = E12.5/
     1 10X *P ABOVE MELTING LINE, NOT DEFINED. * / )
    3 FORMAT(1H0 9X *THERMO T =* F8.3, 5H, P = E12.5/
     1 10X *DOUBLE-VALUED AT COEXISTENCE. * / )
    4 FORMAT(1H0 9X *THERMO T =* F8.3, 5H, P = E12.5/
     1 10X *CP,CV,W UNAVAILABLE AT TCRT AND P.GT.PCRT. * / )
   10 IF(T.LT.TTRP) 11,13
   11 DEN=E=H=S=CV=CP=W=DPDT=DPDD=0  $  PRINT 1, T,P  $  RETURN
   13 IF(T.LT.TTRP+20) 14,20
   14 PM = PMELTF(T)  $  IF(P.GT.PM) 15,20
   15 DEN=E=H=S=CV=CP=W=DPDT=DPDD=0  $  PRINT 2, T,P  $  RETURN
   20 IF(P-PCRT) 21,30,35
C    SUBCRITICAL ISOBARS.
   21 TS = FINDTSF(P)  $  IF(T-TS) 22,23,25
   22 CALL COMPRLQ  $  RETURN
   23 DEN=E=H=S=CV=CP=W=DPDT=DPDD=0  $  PRINT 3, T,P  $  RETURN
   25 CALL GENEOUS  $  RETURN
C    THE CRITICAL ISOBAR.
   30 IF(T.LE.TCRT) 31,32
   31 CALL COMPRLQ  $  RETURN
   32 CALL GENEOUS  $  RETURN
C    SUPERCRITICAL ISOBARS.
   35 IF(T-TCRT) 36,37,39
   36 CALL COMPRLQ  $  RETURN
   37 CALL COMPRLQ  $  CP=CV=W=0  $  PRINT 4, T,P  $  RETURN
   39 CALL GENEOUS  $  RETURN
      ENTRY THERMOM
C    THERMOM FOR GIVEN ISOBAR AT THE MELTING LINE, GET T.
C    RETURNS T,DEN, E,H,S, CV,CP,W, DPMDT,DPDT,DPDD.
   40 T = FINDTMF(P)  $  CALL COMPRLQ  $  RETURN
      ENTRY THERMOL
C    THERMOL FOR GIVEN ISOBAR AT SATURATED LIQUID LINE, GET T.
C    RETURNS T,DEN, E,H,S, CV,CP,CSAT,W, DPSDT,DDSDT, DPDT,DPDD.
   43 T = FINDTSF(P)  $  CALL COEXIST  $  RETURN
      ENTRY THERMOV
C    THERMOV FOR GIVEN ISOBAR AT THE SATURATED VAPOR LINE, GET T.
C    RETURNS T,DEN, E,H,S, CV,CP,W, DPSDT,DDSDT, DPDT,DPDD.
   45 T = FINDTSF(P)  $  CALL COEXIST  $  DEN=DNG $ E=EG $ H=HG $ S=SG
   47 CV=CVG $ CP=CPG $ W=WG $ DPDT=DPGDT $ DPDD=DPGDD
   50 RETURN  $  END
```

```
      FUNCTION THETAF(DEN)
C     THETA = TSAT*EXP(U(S)).
C     LET Q = (S-1)/(ST-1),  WHERE ST = DTRP/DCRT,  THEN -
C     IF S < 1, U = AL*Q**3,     IF S > 1,  U = -AL*Q**3,
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/5/ TSAT, THETA, PSAT
    1 S = DEN/DCRT  $  DSDR = DTRP/DCRT  $  C = DSDR-1
    2 Q = (S-1)/C  $  Q2 = Q*Q  $  U = AL*Q*Q2
    3 U1 = AL*3*Q2*DSDR/C   $   IF(Q) 5,9,4
    4 U = -U   $   U1 = -U1
    5 XP = EXP(U)     $   THETAF = TSAT*XP
    6 DTHDR = (TSAT*U1 + DTSDR)*XP     $    RETURN
    9 THETAF = TCRT  $  DTHDR = 0     $    RETURN   $   END
```

```
      FUNCTION TSATF(DEN)
C     ITERATE T TO MINIMIZE (DEN-DCALC) VIA DENGASF(T), DENLIQF(T).
C     IF ITERATION FAILS, PRINTOUT ONCE ONLY AND STOP AT K = 2.
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/5/ DDSDT
      DATA (Q=2.0),(FN=6.3890561)
C     NOTE,   FN ≡ EXP(Q) - 1.0.
    1 FORMAT(1H1 14X *TSATF(DEN) FAILS AT DEN =* E15.7//
     1 15X 5HDCALC 13X2HDD 10X5HDDSDT 13X2HDT 12X3HT,K )
    2 FORMAT(5X 4E15.7, E16.8)
      K = 0  $  D = DEN  $  IF(D.LE.0) 3,4
    3 TSATF = 0  $  DTSDR = 1.0E+100   $   RETURN
    4 S = D/DCRT  $  YN = TCRT/TTRP-1  $  IF(D-DCRT) 5,30,6
    5 ST=DGAT/DCRT $ F=ALOG(S)/ALOG(ST)*((1-S)/(1-ST))**2 $ GO TO 7
    6 ST=DTRP/DCRT $ U=((S-1)/(ST-1))**3 $ F=(EXP(Q*U)-1)/FN
    7 T = TCRT/(YN*F+1)
    8 DO 20 J=1,50  $  IF(D-DCRT) 9,30,10
    9 DC = DENGASF(T)  $  GO TO 11
   10 DC = DENLIQF(T)
   11 DD = D - DC  $  IF(ABS(DD/D).LT.1.0E-7) 25,12
   12 DT = DD/DDSDT  $  IF(ABS(DT/T).LT.1.0E-7) 25,13
   13 T = T + DT  $  IF(T) 14,14,15
   14 T = TTRP  $  GO TO 18
   15 IF(T.LT.TCRT) 18,16
   16 T = TCRT - 0.00001
   18 IF(K.EQ.1)  PRINT 2, DC, DD, DDSDT, DT, T
   20 CONTINUE  $  K = K+1  $  IF(K.NE.1)  STOP
   21 PRINT 1, DEN   $   GO TO 4
   25 TSATF = T  $  DTSDR = DTRP/DDSDT  $  RETURN
   30 TSATF = TCRT  $  DTSDR = 0  $  RETURN  $  END
```

```
      FUNCTION XBF(T,D)
C     XBF = SQRT(T/TC)*LN(T/TS) = Q(T)*Z(R,T),
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/4/XB1,XB2, XC1,XC2, XE1,XE2, DXBDR,DXCDR,DXEDR
      COMMON/6/ TSAT, THETA, PSAT
    1 TC = TCRT  $  TS = TSAT  $  X = T/TC
    2 U = T/TS  $  U1X = TC/TS  $  U1R = -U*DTSDR/TS
    3 Z = ALOG(U)  $  Z1R=U1R/U  $  Z1X=U1X/U  $  Z2X=-Z1X*Z1X
    4 Q = SQRT(X)  $  Q1 = 0.5/Q  $  Q2 = -Q1/2/X
    5 XBF = Q*Z  $  DXBDR = Q*Z1R  $  XB1 = Q*Z1X + Q1*Z
    6 XB2 = Q*Z2X + Q1*2*Z1X + Q2*Z  $  RETURN  $  END
```

```
      FUNCTION XEF(T,D)
C     THIS H-FORM FROM NBS J.RES. 73A(6), 585, DEC.(1969).
C     XEF ≡ PSI - PSISAT,   PSI ≡ A*F(T) + B*H(R,T),  WHERE -
C     F(T) ≡ EXP(C*(1-X)),   W ≡ (1-TH/T),  WE ≡ W**EX,  AND -
C     H(R,T) ≡ 1 - (W - WE/E)/(1-1/E).
      COMMON/1/AL,BE,GA,DE,EP, DCRT,TCRT,PCRT, DGAT,DTRP,TTRP,PTRP
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/4/XB1,XB2, XC1,XC2, XE1,XE2, DXBDR,DXCDR,DXEDR
      COMMON/6/ TSAT, THETA, PSAT
      DATA (EX = 1.10)
    1 A=DE $ B=1-A $ C=EP $ E=EX $ TC=TCRT $ TS=TSAT $ TH=THETA
    2 EK = E/(E-1)      $  X=T/TC $ XS=TS/TC $ XS1=DTSDR/TC
    3 W = 1.0 - TH/T  $  IF(W) 30,30,4
    4 F = EXP(C*(1-X))  $  F1 = -C*F  $  F2 = -C*F1
    5 W1R = -DTHDR/T  $  W1X = TH/T/X  $  W2X = -2*W1X/X
    6 WE = W**E  $  WE1 = E*WE/W  $  WE1R = WE1*W1R
    7 WE1X = WE1*W1X  $  WE2X = WE1*W2X + (E-1)*WE1/W*W1X*W1X
    8 H = 1 - EK*(W-WE/E)  $  H1R = -EK*(W1R-WE1R/E)
    9 H1X = -EK*(W1X-WE1X/E)  $  H2X = -EK*(W2X-WE2X/E)
   10 P = A*F + B*H  $  P1R = B*H1R
   11 XE1 = A*F1 + B*H1X  $  XE2 = A*F2 + B*H2X
   12 WS = 1.0 - TH/TS  $  IF(WS) 13,13,14
   13 FS = HS = 1  $  FS1 = HS1 = 0  $  GO TO 22
   14 WS1 = (TH*DTSDR/TS - DTHDR)/TS
   15 WSE = WS**E  $  WSE1 = E*WSE*WS1/WS
   16 HS = 1 - EK*(WS-WSE/E)  $  HS1 = -EK*(WS1-WSE1/E)
   20 FS = EXP(C*(1-XS))  $  FS1 = -C*XS1*FS
   22 PS = A*FS + B*HS  $  PS1 = A*FS1 + B*HS1
   25 XEF = P - PS  $  DXEDR = P1R - PS1  $  RETURN
   30 XEF = XE1 = XE2 = DXEDR = 0  $  RETURN  $  END
```

```
      PROGRAM ZIEGLER(OUTPUT)
C     NF3,      ESTIM. V.P. AND QVAP FROM TRIPLE- TO BOILING-POINTS,
C     USING ENTHALPY AND ENTROPY CLOSED LOOPS.
      COMMON/1/ TA,TB,PB,QB, DELH,DELS
      COMMON/2/ EZA,HZA,SZA, HGB,SGB, DHLAB,DSLAB
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      COMMON/9/ PZIP, BZ, DBZDT, DPZDT, DZDD
      COMMON/99/ TI,EZZ, EZ,SZ,CVZ, HZ,CPZ
      DIMENSION QK(2),TK(150),DK(150),PIK(150),PK(150),QJ(150)
    1 FORMAT(I5, F10.3, E15.6)
    2 FORMAT(I5, F10.3, F10.3)
    3 FORMAT(1H1 11X *NF3 ESTIM. V.P.,BAR, AND QVAP, KJ/MOL, RDG/NBS.*//
     1 12X 4HTB =F10.5, 6H, PB =F8.5, 6H, DB =F9.6/
     2 12X5HEZB =F7.1, 7H, EGB =F7.1, 7H, HZB =F8.1, 7H, HGB =F8.1/
     3 12X 5HSZB =F9.4, 7H, SGB =F9.4, 6H, QB =F8.1/ )
    4 FORMAT(7X 3HT,K 8X2HPI 6X5HP,BAR 5X5HMOL/L 6X3HHZA 6X3HHGA
     1 6X3HSZA 6X3HSGA 4X5HDHGAB 4X5HDHLAB 4X5HDSGAB 4X5HDSLAB
     2 5X3HQAH 5X3HQAS )
    5 FORMAT(2XF8.2, E10.4,E11.5,E10.4, 2F9.1,2F9.3, 2F9.1,2F9.3, 2F8.3)
    6 FORMAT(12X 3HT,K 4X5H100/T 7X5HP,EQN 7X5HP,BAR 6X5HLN(P)
     1 4X8HDG,MOL/L 3X5HQ,EQN 3X5HQ,VAP )
    7 FORMAT(5X F10.2, F9.5, 2E12.5, F11.5, E12.5, 2F8.3)
    8 TTRP = 66.36  $  PB = 1.01325  $  TB = 144.10
C     NF3 QVAP,J/MOL VIA PIERCE/AEROJET AT BP = 144.10 K.
    9 QK(1) = QK(2) = 11587.0
C     GET HGB, SGB FOR SATVAPOR AT THE BOILING POINT.
   10 TI = TB  $  CALL IDEAL  $  EZB=EZ  $  HZB=HZ  $  SZB=SZ
   11 DNB = FINDENF(TB,PB)  $  EGB = EZ + EDELF(TB,DNB)
   12 SGB = SZ + DELS  $  HGB = EGB + 100*PB/DNB
   14 I = 1   $   QB = QK(I)
   15 PRINT 3, TB,PB,DNB, EZB,EGB, HZB,HGB, SZB,SGB, QB  $  PRINT 4
C     DO TEMPERATURES FROM TRIPLE- TO BOILING-POINTS -
   20 DO 50 J=1,78   $  IF(J.EQ.1) 21,22
   21 TA = T = TTRP  $  GO TO 23
   22 TA = T = 66 + J
C     GET EZA, HZA, SZA AT T = TA.
   23 TI = TA  $  CALL IDEAL  $  EZA=EZ  $  HZA=HZ  $  SZA=SZ
C     GET DHLAB, DSLAB FOR THE SATDLIQUID FROM TA TO TB.
   24 CALL CSATSUM  $  DHLAB = DELH  $  DSLAB = DELS
C     NOW ITERATE P (T=TA) TO MINIMIZE (QAH - QAS).
   30 P = PI = PSATF(T)  $  DP = P/2  $  SS = DELTAF(T,P)
   31 DO 40 IT=1,15  $  PL = P-DP  $  SL = DELTAF(T,PL)
   32 PP = P+DP  $  SP = DELTAF(T,PP)
   35 IF(SL-SS) 36,36,38
   36 IF(SL-SP) 37,37,39
   37 SS = SL  $  P = P - DP  $  GO TO 40
   38 IF(SP-SS) 39,40,40
   39 SS = SP  $  P = P + DP
   40 DP = DP/2   $   DNA = FINDENF(T,P)
C     USE FINAL P TO GET DNA, HGA,SGA, DHGAB,DSGAB,
C     AND THEN, VIA LOOP, GET QAH, QAS.
   42 EGA = EZA + EDELF(T,DNA)  $  SGA = SZA + DELS
   43 HGA = EGA + 100*P/DNA  $  DHGAB=HGB-HGA  $  DSGAB=SGB-SGA
   44 QAH = QB + DHLAB - DHGAB  $  QAS = TA*(QB/TB + DSLAB - DSGAB)
   45 QAH = QAH/1000  $  QAS = QAS/1000  $  PIK(J) = PI
   46 TK(J)=TA $ DK(J)=DNA $ PK(J)=P $ QJ(J) = (QAH+QAS)/2
   50 PRINT 5, TA,PI,P,DNA, HZA,HGA, SZA,SGA, DHGAB,DHLAB,
     1 DSGAB, DSLAB, QAH,QAS
```

```
C     PRINT T,1/T, PEQN,P,LN(P), DNA, QEQN,Q,  FOR PUBLICATION.
   61 PRINT 3, TB,PB,DNB, EZB,EGB, HZB,HGB, SZB,SGB, QB  $  PRINT 6
   62 DO 99 J=1,78
C  63 IF(J.EQ.50.OR.J.EQ.99) 67,70
C  67 PRINT 3, TB,PB,DNB, EZB,EGB,HZB,HGB,SZB,SGB, QB  $  PRINT 6
   70 T = TK(J)  $  AT = 100/T  $  P = PK(J)  $  GP = ALOG(P)
   71 QE = QVAPXF(T)/1000
C  75 PRINT 7, T,AT, PIK(J),P,GP, DK(J), QE,QJ(J)
   80 IDX = 40  $  IF(J.EQ.1) 90,81
   81 IT = T/5  $  IF(T-5*IT) 99,90
   90 QCALC = 1000*QJ(J)
   91 PRINT 7, T,AT, PIK(J),P,GP, DK(J), QE,QJ(J)
C  92 PUNCH 1, IDX,T,P  $  PUNCH 1, IDX,T,DK(J)  $  PUNCH 2, IDX,T,QCALC
   99 CONTINUE  $  STOP - $  END



      SUBROUTINE CSATSUM
C    GET DELH, DELS ALONG SATDLIQ FROM TA TO TB.
      COMMON/1/ TA,TB,PB,QB, DELH,DELS
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
    1 E = H = S = 0
    2 TR = TB - TA  $  N = ABS(TR)/2 + 2  $  DT = TR/N
    3 DO 8 J=1,N  $  TJ = TA + (J-0.5)*DT
    4 CS = CSATXF(TJ)  $  PS = PSATF(TJ)  $  DS = DENLIQF(TJ)
    5 H = H + CS*DT + 100*DPSDT*DT/DS  $  S = S + CS*DT/TJ
    8 CONTINUE
    9 DELH = H  $  DELS = S  $  RETURN  $  END



      FUNCTION CSATXF(T)
C    NF3 CSAT J/MOL/K VIA PIERCE/AEROJET FOR T = 70 TO 225 K.
C    CS CAL/MOL/K = A + B*X + C*X2 + ... + F*X5,  X = T/100.
      DATA (A=-3.53379),(B=98.9421),(C=-176.963),
     1 (D=148.825),(E=-60.0752),(F=9.55906)
    1 X = T/100  $  X2 = X*X  $  X3 = X*X2
    2 CS = A + B*X + C*X2 + D*X3 + E*X2*X2 + F*X2*X3
    3 CSATXF = 4.184*CS  $  RETURN  $  END



      FUNCTION DELTAF(T,P)
C    GET DNA,EGA,HGA,SGA FOR SATDVAPOR AT T,P, (T=TA),
C    GET DHGAB = HGB-HGA,  DSGAB = SGB-SGA,
C    GET QAH, QAS VIA CLOSED LOOPS, THEN, DELTAF = ABS(QAH-QAS).
      COMMON/1/ TA,TB,PB,QB, DELH,DELS
      COMMON/2/ EZA,HZA,SZA, HGB,SGB, DHLAB,DSLAB
      COMMON/99/ TI,EZZ, EZ,SZ,CVZ, HZ,CPZ
    1 IF(P.GT.0) 2,9
    2 DNA = FINDENF(T,P)  $  EGA = EZA + EDELF(T,DNA)
    3 SGA = SZA + DELS  $  HGA = EGA + 100*P/DNA
    5 DHGAB = HGB - HGA  $  DSGAB = SGB - SGA
    6 QAH = QB + DHLAB - DHGAB  $  QAS = T*(QB/TB + DSLAB - DSGAB)
    8 DELTAF = ABS(QAH-QAS)  $  RETURN
    9 DELTAF = 1.0E+100  $  RETURN  $  END
```

```
      FUNCTION DENLIQF(T)
C     FOR NITROGEN TRIFLUORIDE, RDG/NBS, 1/23/79.
C     DEN = DCRT + YNL*(X + (XE-X)*Y),   YNL ≡ DTRP - DCRT.
C     Y = A1 + A2*X + A3*X2 + A4*X3.
      COMMON/5/ DDSDT
      DIMENSION AW(4)
      DATA (NFL=4),(EL=0.35)
      DATA (DCRT=7.92),(DTRP=26.20), (TTRP=66.36),(TCRT=233.90)
      DATA(AW = 0.740994164, 0.129520773, -0.021108622, -0.096307220)
    1 FORMAT(1HG 9X *DENLIQF = 0, T EXCEEDS TCRT. * / )
    2 IF(TCRT-T) 3,4,5
    3 PRINT 1   $   STOP
    4 DENLIQF = DCRT  $  DDSDT = -1.0E+10  $  RETURN
    5 XN=TCRT-TTRP $ X=(TCRT-T)/XN $ X2 = X*X  $  DXDT = -1.0/XN
    6 XE = X**EL  $  V = XE - X  $  V1 = EL*XE/X - 1
    8 Y = AW(1) + AW(2)*X + AW(3)*X2 + AW(4)*X*X2
    9 Y1 = AW(2) + 2*AW(3)*X + 3*AW(4)*X2  $  YNL = DTRP - DCRT
   11 DENLIQF = DCRT + YNL*(X + V*Y)
   12 DDSDT = YNL*(1 + V*Y1 + V1*Y)*DXDT   $   RETURN  $  END



      FUNCTION EDELF(T,D)
C     CHANGE OF E,S ON ISOTHERM T FROM DEN = 0 TO DEN = D.
C     USE VIRIAL EQNSTATE.  NOTE DCZ = 7.92 FOR NF3.
C     DELE = EDELF = -R*(D/DCZ)*T*T*DB(T)/DT,
C     DELS = -R*LN(D*R*T/P1) - R*(D/DCZ)*(B(T) + T*DB(T)/DT).
      COMMON/1/ TA,TB,PB,QB, DELH,DELS
      COMMON/9/ PZIP, BZ, DBZDT, DPZDT, DZDD
      DATA (Q=1.01325),(R=0.0831450),(DCZ=7.92)
    1 Z = ZIPF(T,D)  $  EDELF = -100*R*(D/DCZ)*T*T*DBZDT
    2 DELS = ALOG(D*R*T/Q) + (D/DCZ)*(BZ + T*DBZDT)
    9 DELS = -100*R*DELS   $   RETURN  $  END



      SUBROUTINE IDEAL
C     NITROGEN TRIFLUORIDE IDEAL GAS FUNCTIONS, R.D.G., 1/23/79.
C     CPZ/R = 4 + (A1 + A2/X + A3/X2 + . . )*EXP(-E/X),   X ≡ T/100.
      COMMON/99/ TI,EZZ, EZ,SZ,CVZ, HZ,CPZ
      DIMENSION A(5)
      DATA (NF=5),(E=8.76),(R=8.3145)
      DATA(A=6.1189724,48.162688,228.231405,-249.067052,564.293045)
    1 NK = NF  $  XI = TI/100  $  XP = EXP(-E/XI)
    2 CP = 4.0  $  DO 3 K=1,NK
    3 CP = CP + A(K)*XP*XI**(1-K)
    4 SI = 4.184*62.378/R  $  HI = 4184.0*(0.024+2.832)/300/R
C     NUMERICAL INTEGRATION FOR HZ/R, SZ/R  -
    5 H = S = 0  $  N = ABS(TI-300)/2 + 2   $   DX = (XI-3)/N
    6 DO 10 J=1,N  $  X = 3.0 + (J-0.5)*DX  $  XP = EXP(-E/X)
    7 CPX = 4.0  $  DO 8 K=1,NK
    8 CPX = CPX + A(K)*XP*X**(1-K)
    9 H = H + CPX*DX   $   S = S + CPX*DX/X
   10 CONTINUE  $  H = (HI*3 + H)/XI  $  S = SI + S
C     CONVERT TO JOULES, MOLES, KELVINS.
   11 HZ = R*TI*H  $  EZ = HZ - R*TI  $  SZ = R*S
   12 CPZ = R*CP  $  CVZ = CPZ - R   $   RETURN  $  END
```

```
      FUNCTION FINDENF(T,P)
C     GIVEN P,T IN VIRIAL EQN., SOLVE QUADRATIC FOR DEN, MOL/L.
C     USE VIRIAL EQNSTATE.  NOTE DCZ = 7.92 FOR NF3.
      DATA (DCRT=7.92),(TCRT=234.0),(R=0.083145)
      DATA (B1=0.49382731),(B2=-1.30972686),(B3=-0.38983811)
    1 X = T/TCRT  $  B = B1 + B2/X + B3/X/X/X
    2 Q = SQRT(1.0 + 4*P*B/R/T/DCRT)
    3 FINDENF = DCRT*(Q-1)/2/B   $   RETURN  $  END


      FUNCTION PSATF(T)
C     FOR NITROGEN TRIFLUORIDE, RDG/NBS, 1/23/79.
C     LN(P) = P1 + P2*U + (P3 + P4*X + P5*X2 + . .)*(1-X)**EPP.
C     WHERE,  X ≡ T/TCRT,  U ≡ (1-1/X).
      COMMON/3/DPDT,D2PDT2,DPSDT,DPMDT,DPDD,DPDR,DTSDR,DTHDR
      DIMENSION PJ(4)
      DATA (NFP=4),(EPP=1.95),(TCRT=233.90)
      DATA(PJ = 3.81146639, 6.28921982, -1.95516249, 4.51743327)
    1 FORMAT(1H0 9X *T ABOVE TCRT IN PSATF(T). * / )
    2 X = T/TCRT  $  X2 = X*X  $  X1T = 1.0/TCRT
    3 U = 1.0 - 1/X  $  U1T = 1.0/X/T
    4 V = 1.0 - X  $  IF(V) 7,8,9
    7 PRINT 1   $   STOP
    8 Z = Z1 = 0  $  GO TO 10
    9 Z = V**EPP  $  Z1 = -EPP*Z/V
   10 S = S1 = 0  $  DO 13 K=3,NFP  $  L = K-3  $  XL = X**L
   12 S = S + PJ(K)*XL  $  S1 = S1 + L*PJ(K)*XL/X
   13 CONTINUE
   14 PL = PJ(1) + PJ(2)*U + S*Z
   15 PL1T = PJ(2)*U1T + (S*Z1 + S1*Z)*X1T
   16 PSATF = EXP(PL)  $  DPSDT = PL1T*PSATF  $  RETURN  $  END


      FUNCTION QVAPXF(T)
C     NF3 AEROJET FORMULA, J/MOL.
      DATA (EM=0.354),(EN=0.456),(TC=233.9)
      DATA (A=3323.72),(B=620.265)
    1 X = 1.0 - T/TC  $  Q = A*X**EM + B*X**EN
    2 QVAPXF = 4.184*Q   $   RETURN  $  END


      FUNCTION ZIPF(T,D)
C     ISOBUTANE VIRIAL EQN., R.D.G., SEPT., 1978.
C     CRITICAL CONSTS. FOR NF3.
C     Z(T,D) = 1 + B(X)*S,   X ≡ T/TCRT,  S ≡ DEN/DCRT.
C     B(X) = B1 + B2/X + B3/X3.   DEN IN MOL/L.
      COMMON/9/ PZIP, BZ, DBZDT, DPZDT, DZDD
      DATA (DCRT=7.92),(TCRT=234.0),(R=0.083145)
      DATA (B1=0.49382731),(B2=-1.30972686),(B3=-0.38983811)
    1 S = D/DCRT  $  X = T/TCRT  $  X2 = X*X  $  X3 = X*X2
    2 BZ = B = B1 + B2/X + B3/X3
    3 ZIPF = 1.0 + B*S  $  PZIP = D*R*T*ZIPF
    4 DBZDT = -(B2/X2 + 3*B3/X/X3)/TCRT  $  DZDD = B/DCRT
    5 DPZDT = D*R*(S*T*DBZDT + ZIPF)   $   RETURN  $  END
```

```
      PROGRAM COMPAR(INPUT,OUTPUT,PUNCH)
C      READS P,T,DENSITY,ENTHALPY,ENTROPY,SPECIFIC HEATS, CALCULATES SAME
C      FROM BWR EQN AND COMPARES VALUES
C     PROCESSES ONE POINT AT A TIME, BLANK CARD AT END OF RUN EXCEPT END
      COMMON F,Y,NFUN,RESS
      COMMON/HJM/ EPSI,CPCV,RRR,AKT
      COMMON/CRIT/ EM, EOK, RM, TC, DC, X , PC, SIG
      COMMON/14/TL,DWK,PSIG,TDWG,BHMM,TBRM,PH,PBAR,PDWG,PLOAD,TUBN
      COMMON/15/TVALVE
      COMMON/16/TBB,PBB,DPBDT, VB,DVBDT
      COMMON/17/ IPRINT
      COMMON/G/ RG
      DIMENSION ET(10),HI(4),CLK(10),ID(4),TT(10),HE(4),KD(4)
      DIMENSION F(40)
      CALL DATANF3
      DTP=26.32
      P=0.00000185  $  T=66.350
      H0=ENTHAL(P,DTP,T)
    1 READ 2,P,T,RG,HG,SG,CVG,CPG
    2 FORMAT(F10.4,F10.3,F11.4,F 9.1,F10.3,F10.2,F10.2)
      IF(T.EQ.0) GO TO 4
      P=P/1.01325 $ RBWR=FINDD(P,T)
      HBWR=ENTHAL(P,RBWR,T)-H0
      SBWR=ENTROP(RBWR,T)
      CVBWR=CV(RBWR,T) $ CPBWR=CP(RBWR,T)
      DR=(RBWR-RG)*100/RG  $  DH=HBWR-HG
      DS=SBWR-SG $ DCV=(CVBWR-CVG)*100/CVG $ DCP=(CPBWR-CPG)*100/CPG
      P=P*1.01325
      V=1.0/RG
C     PRINT 6,P,T,V,HBWR,SBWR
    6 FORMAT(2F10.3,F9.1,F9.3)
      PRINT 3,P,T,V,DR,DH,DS,DCV,DCP
    3 FORMAT(2F10.1,E13.4,F8.3,F9.1,F9.3,2F8.2)
      PUNCH 7,P,T,DR,DH,DS,DCV,DCP
    7 FORMAT(2F10.1,F8.3,F9.1,F9.3,2F8.2)
      GO TO 1
    4 CONTINUE
      CALL EXIT
      END



      SUBROUTINE DATANF3
C      PARAMETERS FOR NITROGEN TRIFLUORIDE
      DIMENSION G(32),VP(9),GI(11)
      DIMENSION GV(9),GT(9),FV(4),FT(4),EV(8),ET(8)
      COMMON/CRIT/ EM, EOK, RM, TC, DC, X , PC, SIG
      COMMON/DATA1/GV,GT,FV,FT,EV,ET
      COMMON/SEN/BETA,XO,DELTA,E1, E2, AGAM
      COMMON/DATA/G,R,GAMMA,VP,DTP
      COMMON/CPID/GI
      COMMON/ISP/N,NW,NWW
      NWW=0 $ N=0 $ NW=1
      TC=234.0 $ EM=71.019 $ DC=0.5625
      PC=44.607/1.01325  $  GAMMA=-0.0056
      T0=100.0 $ H0=3334.6 $ S0=215.69
      VP(1)=20.315417602 $ VP(2)=-8.362069370
      VP(3)=-21.398986401 $ VP(4)=20.162194616
      VP(5)=-6.918662727 $ VP(6)=3.677799376
      VP(7)=1.75
      DTP=26.20
      R=0.0820568
      G( 1) =                .1751151116E-01
      G( 2) =               -.5338642406E+00
```

```
      G( 3) =              .3924633078E+01
      G( 4) =             -.5141353757E+03
      G( 5) =             -.3243348520E+05
      G( 6) =             -.5912181013E-03
      G( 7) =              .9096990477E+00
      G( 8) =             -.4785568295E+03
      G( 9) =             -.4180501052E+07
      G(10) =             -.9695778991E-05
      G(11) =              .5361200088E-01
      G(12) =             -.1443265236E+02
      G(13) =             -.3322161796E-02
      G(14) =              .2764741771E+00
      G(15) =              .8324982578E+01
      G(16) =             -.1307102346E-01
      G(17) =              .1851077599E-03
      G(18) =              .2920941516E+00
      G(19) =             -.6918309272E-02
      G(20) =              .4308730236E+07
      G(21) =             -.1096864087E+08
      G(22) =              .2380327276E+05
      G(23) =              .3137563559E+07
      G(24) =              .6086206849E+02
      G(25) =              .4205136659E+02
      G(26) =              .1076337320E+00
      G(27) =             -.3297262333E+02
      G(28) =              .8485003350E-04
      G(29) =              .1224321948E-02
      G(30) =              .1269404637E-06
      G(31) =             -.8824183840E-06
      G(32) =              .3309207594E-04
      DTP=26.32
      RETURN $ END


      SUBROUTINE PROPS(PP,DD,TT)
C      CALCS P,DP/DRHO,DPDT, AND NECESSARY INTEGRALS FOR H,S,G ETC
      DIMENSION X(33)
      DIMENSION B(33),G(32)
      EQUIVALENCE (B,X)
      COMMON/DATA/G,R,GAMMA
      COMMON/1/B
      DATA(ID=1)
      DATA(IZ=1)
    1 CONTINUE
      IF(IZ.LE.0)GO TO 2
      IZ=0
    2 CONTINUE
      D=DD
      P=PP
      T=TT
      GM=GAMMA
      D2=D*D
      D3=D2*D
      D4=D3*D
      D5=D4*D
      D6=D5*D
      D7=D6*D
      D8=D7*D
      D9=D8*D
      D10=D9*D
      D11=D10*D
      D12=D11*D
      D13=D12*D
```

```
      TS=SQRT (T)
      T2=T*T
      T3=T2*T
      T4=T3*T
      T5=T4*T
      F=EXP (GM*D2)
      GO TO (100,200,300,400,500,600,700),K
      ENTRY PRESS
C     ENTRY FOR PRESSURE, INPUT IS DENSITY
C     AND TEMP. IN MOL/L AND K, OUTPUT IS IN ATM.
      K=1
      GO TO 1
  100 CONTINUE
      B( 1)=D2*T
      B( 2)=D2*TS
      B( 3)=D2
      B( 4)=D2/T
      B( 5)=D2/T2
      B( 6)=D3*T
      B( 7)=D3
      B( 8)=D3/T
      B( 9)=D3/T2
      B(10)=D4*T
      B(11)=D4
      B(12)=D4/T
      B(13)=D5
      B(14)=D6/T
      B(15)=D6/T2
      B(16)=D7/T
      B(17)=D8/T
      B(18)=D8/T2
      B(19)=D9/T2
      B(20)=D3*F/T2
      B(21)=D3*F/T3
      B(22)=D5*F/T2
      B(23)=D5*F/T4
      B(24)=D7*F/T2
      B(25)=D7*F/T3
      B(26)=D9*F/T2
      B(27)=D9*F/T4
      B(28)=D11*F/T2
      B(29)=D11*F/T3
      B(30)=D13*F/T2
      B(31)=D13*F/T3
      B(32)=D13*F/T4
      IF(ID.GT.0)GO TO 102
      B(33)=P-R*D*T
      RETURN
  102 P=0
      M=32
      DO 101 I=1,M
  101 P=P+B(I)*G(I)
      P=P+R*D*T
      PP=P
      RETURN
      ENTRY DPDD
C     PARTIAL OF PRESSURE WITH RESPECT TO
C     DENSITY - SEE PRESSURE
C     ENTRY FOR UNITS
      K=2
      GO TO 1
  200 CONTINUE
      F1=2.00*F*GM*D
      F21=3.000*F*D2 +F1*D3
      F22=5.000*F*D4 +F1*D5
      F23=7.000*F*D6 +F1*D7
```

```
      F24=9.000*F*D8 +F1*D9
      F25=11.00*F*D10+F1*D11
      F26=13.00*F*D12+F1*D13
      B( 1)=2.00*D*T
      B( 2)=2.00*D*TS
      B( 3)=2.00*D
      B( 4)=2.00*D/T
      B( 5)=2.00*D/T2
      B( 6)=3.00*D2*T
      B( 7)=3.00*D2
      B( 8)=3.00*D2/T
      B( 9)=3.00*D2/T2
      B(10)=4.00*D3*T
      B(11)=4.00*D3
      B(12)=4.00*D3/T
      B(13)=5.00*D4
      B(14)=6.00*D5/T
      B(15)=6.00*D5/T2
      B(16)=7.00*D6/T
      B(17)=8.00*D7/T
      B(18)=8.00*D7/T2
      B(19)=9.00*D8/T2
      B(20)=F21/T2
      B(21)=F21/T3
      B(22)=F22/T2
      B(23)=F22/T4
      B(24)=F23/T2
      B(25)=F23/T3
      B(26)=F24/T2
      B(27)=F24/T4
      B(28)=F25/T2
      B(29)=F25/T3
      B(30)=F26/T2
      B(31)=F26/T3
      B(32)=F26/T4
      M=32
      IF(ID.GT.0)GO TO 202
      B(33)=P-R*T
      RETURN
  202 P=0
      DO 201 I=1,M
  201 P=P+B(I)*G(I)
      P=P+R*T
      PP=P
      RETURN
      ENTRY DPDT
C     PARTIAL OF PRESSURE WITH RESPECT
C     TO TEMPERATURE - SEE PRESSURE
C     ENTRY FOR UNITS
      K=3
      GO TO 1
  300 CONTINUE
      X( 1)=D2
      X( 2)=D2/(2.00*TS)
      X( 3)=0
      X( 4)=-D2/T2
      X( 5)=-2.00*D2/T3
      X( 6)=D3
      X( 7)=0
      X( 8)=-D3/T2
      X( 9)=-2.00*D3/T3
      X(10)=D4
      X(11)=0
      X(12)=-D4/T2
```

```
      X(13)=0
      X(14)=-D6/T2
      X(15)=-2.00*D6/T3
      X(16)=-D7/T2
      X(17)=-D8/T2
      X(18)=-2.00*D8/T3
      X(19)=-2.00*D9/T3
      X(20)=-2.00*D3*F/T3
      X(21)=-3.00*D3*F/T4
      X(22)=-2.00*D5*F/T3
      X(23)=-4.00*D5*F/T5
      X(24)=-2.00*D7*F/T3
      X(25)=-3.00*D7*F/T4
      X(26)=-2.00*D9*F/T3
      X(27)=-4.00*D9*F/T5
      X(28)=-2.00*D11*F/T3
      X(29)=-3.00*D11*F/T4
      X(30)=-2.00*D13*F/T3
      X(31)=-3.00*D13*F/T4
      X(32)=-4.00*D13*F/T5
      IF(ID.GT.0)GO TO 302
      X(33)=PP-R*D
      RETURN
  302 P=0
      DO 301 I=1,32
  301 P=P+G(I)*X(I)
      PP=P+R*D
      RETURN
      ENTRY DSDN
C     PARTIAL OF ENTROPY WITH
C     RESPECT TO THE G COEFFICIENTS
      K=4
      GO TO 1
  400 CONTINUE
C     S=S0-R*LOGF(D*R*T/P0)+(DSDN(D)-DSDN(0))*101.325 +CPOS(T)
      G1=F/(2.00*GM)
      G2=(F*D2-2.00*G1)/(2.00*GM)
      G3=(F*D4-4.00*G2)/(2.00*GM)
      G4=(F*D6-6.00*G3)/(2.00*GM)
      G5=(F*D8-8.00*G4)/(2.00*GM)
      G6=(F*D10-10.00*G5)/(2.00*GM)
      X( 1)=-D
      X( 2)=-D/(2.00*TS)
      X( 3)=0.D0
      X( 4)=+D/T2
      X( 5)=2.00*D/T3
      X( 6)=-D2/2.00
      X( 7)=0.D0
      X( 8)=D2/(2.00*T2)
      X( 9)=D2/T3
      X(10)=-D3/3.00
      X(11)=0.D0
      X(12)=D3/(3.00*T2)
      X(13)=0.D0
      X(14)=D5/(5.00*T2)
      X(15)= 2.00*D5/(5.00*T3)
      X(16)=D6/(6.00*T2)
      X(17)=D7/(7.00*T2)
      X(18)=2.00*D7/(7.00*T3)
      X(19)=D8/(4.00*T3)
      X(20)=2.00*G1/T3
      X(21)=3.00*G1/T4
      X(22)=2.00*G2/T3
      X(23)=4.00*G2/T5
      X(24)=2.00*G3/T3
      X(25)=3.00*G3/T4
```

```
      X(26)=2.00*G4/T3
      X(27)=4.00*G4/T5
      X(28)=2.00*G5/T3
      X(29)=3.00*G5/T4
      X(30)=2.00*G6/T3
      X(31)=3.00*G6/T4
      X(32)=4.00*G6/T5
      IF(ID.GT.0)GO TO 402
      RETURN
  402 P=0
      DO 401 I=1,32
  401 P=P+G(I)*X(I)
      PP=P
      RETURN
      ENTRY DUDN
C     TERMS NEEDED FOR ENTHALPY CALCULATION
      K=5
      GO TO 1
  500 CONTINUE
C     H=H0+(T*DSDN(D)-DSDN(0))*101.325+(DUDN(D-DUDN(0))*101.325+CPOH(T)
C     +(P/D-R*T)*101.325
      G1=F/(2.00*GM)
      G2=(F*D2-2.00*G1)/(2.00*GM)
      G3=(F*D4-4.00*G2)/(2.00*GM)
      G4=(F*D6-6.00*G3)/(2.00*GM)
      G5=(F*D8-8.00*G4)/(2.00*GM)
      G6=(F*D10-10.00*G5)/(2.00*GM)
      X( 1)=D*T
      X( 2)=D*TS
      X( 3)=D
      X( 4)=D/T
      X( 5)=D/T2
      X( 6)=D2*T/2.00
      X( 7)=D2/2.00
      X( 8)=D2/(2.00*T)
      X( 9)=D2/(2.00*T2)
      X(10)=D3*T/3.00
      X(11)=D3/3.00
      X(12)=D3/(3.00*T)
      X(13)=D4/4.00
      X(14)=D5/(5.00*T)
      X(15)=D5/(5.00*T2)
      X(16)=D6/(6.00*T)
      X(17)=D7/(7.00*T)
      X(18)=D7/(7.00*T2)
      X(19)=D8/(8.00*T2)
      X(20)=G1/T2
      X(21)=G1/T3
      X(22)=G2/T2
      X(23)=G2/T4
      X(24)=G3/T2
      X(25)=G3/T3
      X(26)=G4/T2
      X(27)=G4/T4
      X(28)=G5/T2
      X(29)=G5/T3
      X(30)=G6/T2
      X(31)=G6/T3
      X(32)=G6/T4
      IF(ID.GT.0)GO TO 502
      RETURN
  502 P=0
      DO 501 I=1,32
  501 P=P+G(I)*X(I)
```

```
      PP=P
      RETURN
      ENTRY TDSDT
C     TEMP. TIMES THE PARTIAL OF
C     ENTROPY WITH RESPECT TO TEMP.
      K=6
      GO TO 1
  600 CONTINUE
C     CV=CV0+(TDSDN(/)-TDSDN(D))*101.325
      G1=F/(2.00*GM)
      G2=(F*D2-2.00*G1)/(2.00*GM)
      G3=(F*D4-4.00*G2)/(2.00*GM)
      G4=(F*D6-6.00*G3)/(2.00*GM)
      G5=(F*D8-8.00*G4)/(2.00*GM)
      G6=(F*D10-10.00*G5)/(2.00*GM)
      X(1)=0
      X( 2)=-D/(4.00*TS)
      X(3)=0
      X( 4)=2.00*D/T2
      X( 5)=6.00*D/T3
      X(6)=0
      X(7)=0
      X( 8)=D2/T2
      X( 9)=3.00*D2/T3
      X(10)=0
      X(11)=0
      X(12)=(2.00*D3)/(3.00*T2)
      X(13)=0
      X(14)=(2.00*D5)/(5.00*T2)
      X(15)=(6.00*D5)/(5.00*T3)
      X(16)=D6/(3.00*T2)
      X(17)=(2.00*D7)/(7.00*T2)
      X(18)=(6.00*D7)/(7.00*T3)
      X(19)=(3.00*D8)/(4.00*T3)
      X(20)=6.000*G1/T3
      X(21)=12.00*G1/T4
      X(22)=6.000*G2/T3
      X(23)=20.00*G2/T5
      X(24)=6.000*G3/T3
      X(25)=12.00*G3/T4
      X(26)=6.000*G4/T3
      X(27)=20.00*G4/T5
      X(28)=6.000*G5/T3
      X(29)=12.00*G5/T4
      X(30)=6.000*G6/T3
      X(31)=12.00*G6/T4
      X(32)=20.00*G6/T5
      IF(ID.GT.0)GO TO 602
      RETURN
  602 P=0
      DO 601 I=1,32
  601 P=P+G(I)*X(I)
      PP=P
      RETURN
      ENTRY DP2D2
C     SECOND PARTIAL OF PRESSURE WITH
C     RESPECT TO DENSITY SQUARED
      K=7
      GO TO 1
  700 CONTINUE
      F1=2.*F*GM*D
      F12=2.*F1*GM*D+2.*F*GM
      F212=3.*F1*D2+3.*2.*D*F+F12*D3+F1*3.*D2
      F222=5.*F1*D4 +5.*4.*D3*F+5.*D4*F1+F12*D5
      F232=7.*F1*D6+7.*6.*D5*F+7.*D6*F1+F12*D7
      F242=9.*F1*D8+9.*8.*D7*F+9.*D8*F1+F12*D9
```

```
      F252=11.*F1*D10+10.*11.*D9*F+11.*D10*F1+F12*D11
      F262=13.*F1*D12+13.*12.*D11*F+13.*D12*F1+F12*D13
      B(1)=2.*T  $B(2)=2.*TS  $  B(3)=2.
      B(4)=2./T  $  B(5)=2./T2  $  B(6)=6.*D*T
      B(7)=6.*D  $  B(8)=6.*D/T  $  B(9)=6.*D/T2
      B(10)=12.*D2*T  $  B(11)=12.*D2  $  B(12)=12.*D2/T
      B(13)=20.*D3  $  B(14)=30.*D4/T  $  B(15)=30.*D4/T2
      B(16)=42.*D5/T  $  B(17)=56.*D6/T  $  B(18)=56.*D6/T2
      B(19)=72.*D7/T2  $  B(20)=F212/T2  $  B(21)=F212/T3
      B(22)=F222/T2
      B(23)=F222/T4  $  B(24)=F232/T2  $  B(25)=F232/T3
      B(26)=F242/T2  $  B(27)=F242/T4  $  B(28)=F252/T2
      B(29)=F252/T3  $  B(30)=F262/T2  $  B(31)=F262/T3
      B(32)=F262/T4
      M=32
      IF(ID.GT.0)GO TO 702
      B(33)=PP
      RETURN
  702 P=0
      DO 701 I=1,M
  701 P=P+B(I)*G(I)
      PP=P
      RETURN
      END



      FUNCTION DPDTVP(T)
C      VAPOR PRESSURE DP/DT
      DIMENSION G(32),VP(9)
      COMMON/DATA/G,R,GAMMA,VP
      COMMON/CRIT/ EM, EOK, RM, TC, DC, X , PC, SIG
      T2=T+0.001 $ P2=VPN(T2)
      T1=T-0.001 $ P1=VPN(T1)
      DPDTVP=(P2-P1)/0.002
      RETURN $ END



      FUNCTION VPN(T)
C      VAPOR PRESSURE IN ATM
      DIMENSION G(32),VP(9)
      COMMON/DATA/G,R,GAMMA,VP
      COMMON/CRIT/ EM, EOK, RM, TC, DC, X , PC, SIG
      VP(1)=20.315417602 $ VP(2)=-8.362069370
      VP(3)=-21.398986401 $ VP(4)=20.162194616
      VP(5)=-6.918662727 $ VP(6)=3.677799376
      VP(7)=1.75
      TC=234.0
      IF(T.GT.TC) 18,19
   18 VPN=PC+(1.245/1.01325)*(T-TC)
      PRINT 30
   30 FORMAT(1H *T GREATER THAN TC, VP EXTENSION USED*)
      GO TO 17
   19 CONTINUE
      X=T/TC
      P=VP(1)+VP(2)/X+VP(3)*X+VP(4)*X**2+VP(5)*X**3+VP(6)*X*(1.0-X)**VP
     1 (7)
      VPN=EXP(P)/1.01325
   17 CONTINUE
      RETURN $ END
```

```
      FUNCTION FIND D(P,T)
      DIMENSION G(32),VP(9)
      COMMON/DATA/G,R,GAMMA,VP,DTP
      COMMON/CRIT/ EM,EOK,RM,TC,DC,XX,PC,SIG
      COMMON/G/ RG
C     ITTERATES EQUATION OF STATE
C     FOR DENSITY, GIVEN PRESSURE
C     AND TEMP. IN ATM. AND KELVIN.  IF
C     ITTERATION FAILS TRY USING
C     FUNCTION CALLED FIND M
      TT=T
      IF(TT.GT.TC) GO TO 100
      IF( P.GT.VPN(TT))GO TO 101
      X=P*(.8-1.)/PC+1.0
      DD=P/(R*T*X)
      GO TO 102
  100 X=(1.1/(9.*PC))*P+.7/9.
      DD=P/(R*T*X)
      IF(P/PC.GT.20..AND.T/ TC  .LT.2.5)DD=DTP
      GO TO 102
  101 DD=DTP
  102 CONTINUE
      DO 10 I=1,50
      CALL PRESS(PP,DD,TT)
      P2=PP
      IF(ABS (P-P2)-1.E-7*P) 20,20,1
    1 CALL DPDD(PP,DD,TT)
      DP=PP
      CORR=(P2-P)/DP
      D=DD
      IF(ABS(CORR)-0.00005*D) 20,20,10
   10 DD=DD-CORR
      FIND D=0
      RETURN
   20 FIND D=DD
      IF(D.LT.0) 25,26
   25 DD=RG
      GO TO 102
   26 CONTINUE
      RETURN
      END


      FUNCTION CV(D,T)
C     CALCULATES SPECIFIC HEAT CAPACITY
C     AT CONSTANT VOLUME FOR AN INPUT
C     OF DENSITY AND TEMPERATURE IN MOL/L AND K
      DATA(R=8.31434)
      DD=D
      TT=T
      CALL TDSDT(CD,DD,TT)
      DD=0
      CALL TDSDT(C0,DD,TT)
      CV=CPI(TT)+(C0-CD)*101.325
      CV=CV-R
      RETURN
      END


      FUNCTION CP(D,T)
C     CALCULATES SPECIFIC HEAT CAPACITY
C     AT CONSTANT PRESSURE FOR INPUT OF
C     DENSITY AND TEMPERATURE IN MOL/L AND K
C     CP IS IN JOULES/MOL-K
```

```
      CVEE=CV(D,T)
      CALL DPDT(DPT,D,T)
      CALL DPDD(DPD,D,T)
      CP=CVEE+(T/(D**2)*(DPT**2)/DPD)*101.325
      RETURN
      END



      FUNCTION ENTHAL(P,D,T)
C     CALCULATES ENTHALPY FOR INPUT OF
C     PRESSURE, DENSITY AND TEMP. IN
C     ATM., MOL/L AND K.  OUTPUT IS IN
C     JOULES/MOL
      R=0.0820568
      DD=D
      TT=T
      CALL DSDN(SD,DD,TT)
      CALL DUDN(UD,DD,TT)
      DD=0
      CALL DSDN(S0,DD,TT)
      CALL DUDN(U0,DD,TT)
      CALL HI(HSI,T)
      ENTHAL=T*(SD-S0)*101.325+(UD-U0)*101.325+ HSI +(P/D-R*T)*101.325
      RETURN
      END



      FUNCTION ENTROP(D,T)
C     CALCULATES ENTROPY
C     FOR AN INPUT OF DENSITY AND
C     TEMP. IN MOL/L AND K.  OUTPUT IS IN
C     JOULES/MOL-K
      R=0.0820568
      DD=D
      TT=T
      CALL DSDN(SD,DD,TT)
      DD=0
      CALL DSDN(S0,DD,TT)
      CALL SI(HSI,T)
      ENTROP=(SD-S0)*101.325-R*ALOG(D*R*T)*101.325+HSI
      RETURN
      END



      FUNCTION SOUND(D,T)
C     CALCULATES THE SPEED OF SOUND
C     FOR AN INPUT OF DENSITY AND TEMP.
C     IN MOL/L AND KELVIN.  OUTPUT IS IN
C     METERS/SECOND.
      COMMON/CRIT/W
      CALL DPDD(DP,D,T)
      SOUND=((CP(D,T)/CV(D,T))*DP*101325./W)**.5
      RETURN
      END



      FUNCTION CPI(T)
C       IDEAL GAS SPECIFIC HEAT,CP, IN J/MOL-K
      DIMENSION  Q(5)
      DATA((Q(I),I=1,5)=6.1189724,48.162688,228.231405,-249.067052,
```

```
     1        564.293045)
       X=T/100.
       CPI=0.0
       DO 1 I=1,5
     1 CPI=CPI+Q(I)*X**(1-I)
       CPI=(CPI*EXP(-8.76/X)+4.0)*8.31441
       RETURN
       END


       SUBROUTINE HI(HSI,T)
C       IDEAL GAS ENTHALPY IN J/MOL AND ENTROPY IN J/MOL-K
       T0=100.0 & H0=3334.6
       DT=(T-T0)/50.0
       HSI=H0
       DO 1 I=1,50
       CP=CPI(T0+(I-0.5)*DT)
     1 HSI=HSI+CP*DT
       RETURN
       ENTRY SI
       T0=100.0
       DT=(T-T0)/50.0
       HSI=215.69
       DO 2 I=1,50
       CP=CPI(T0+(I-0.5)*DT)
     2 HSI=HSI+CP*DT/(T0+(I-0.5)*DT)
       RETURN
       END
```

## Appendix E. Explanations for Table Headings

In many tables we have included values of parameters, constants and coefficients in the headings to ensure that correct values have been transcribed into the manuscript. These include -

Table 1, EPP, exponent in eq. (1)
TTRP, triple-point temperature, K
TCRT, critical-point temperature, K
PTRP, triple-point pressure, bar
PCRT, critical-point pressure, bar
DPSDT, vapor-pressure slope at the C.P., bar/K
list of coefficients for eq. (1)

Table 2, EL, exponent in eq. (2)
DTRP, triple-point liquid density, mol/L
DCRT, critical-point density, mol/L
list of coefficients for eq. (2)

Table 3, EG, exponent in eq. (3),
EGX, exponent for last term in eq. (3)
DGAT, triple-point vapor density, mol/L
list of coefficients for eq. (3)

Table 4, EV, highest exponent in eq. (5)
list of coefficients for eq. (5)

Table 6
TBLP, boiling-point temperature, K
DGBP, vapor density at the B.P., mol/L
DLBP, liquid density at the B.P., mol/L
DPS/DTB, vapor-pressure slope at the B.P., bar/K
QVAPB, heat of vaporization at the B.P., kJ/mol
IX thru EP, non-linear parameters in eq. (6)
B1 thru C3, coefficients in eq. (6)
B,C are $B(\rho)$, $C(\rho)$ in eq. (6)

Table 7
TC, critical temperature, K
DC, critical density, mol/L
PC, critical pressure, bar
DPS/DT, vapor pressure slope at the C.P, bar/K
DP/DT, slope of the critical isochore at the C.P., bar/K

Table 10, NF, number of coefficients,
E, exponent in eq. (8),
QT, triple-Point heat of vaporization, kJ/mol
list of coefficients for eq. (8)

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☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.

16. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)*

Density and specific heat data for nitrogen trifluoride have been measured in the approximate ranges $90 < T < 320$ K, $0.07 < \rho/\rho_c < 3$, at pressures up to 300 bar. These include vapor pressures, some orthobaric densities away from the critical region, and specific heats in the single and two phase regions. A nonanalytic equation of state is used to tabulate thermophysical properties along isobars. The tables include: compressibility factors, densities, enthalpies, entropies, heats of vaporization, isochores, isotherms, Joule-Thomson inversion, orthobaric densities, specific heats, speeds of sound, and vapor pressures. The data also are represented by an analytic equation of state and comparisons are made between some results from the two equations.

17. KEY WORDS *(six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper name; separated by semicolons)*

Compressibility factors; densities; enthalpies; entropies; equation of state; heats of vaporization; isobars; isochores; isotherms; Joule-Thomson inversion; nitrogen trifluoride; orthobaric densities; specific heats; speeds of sound; vapor pressures.

18. AVAILABILITY

☒ For Official Distribution. Do Not Release to NTIS

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